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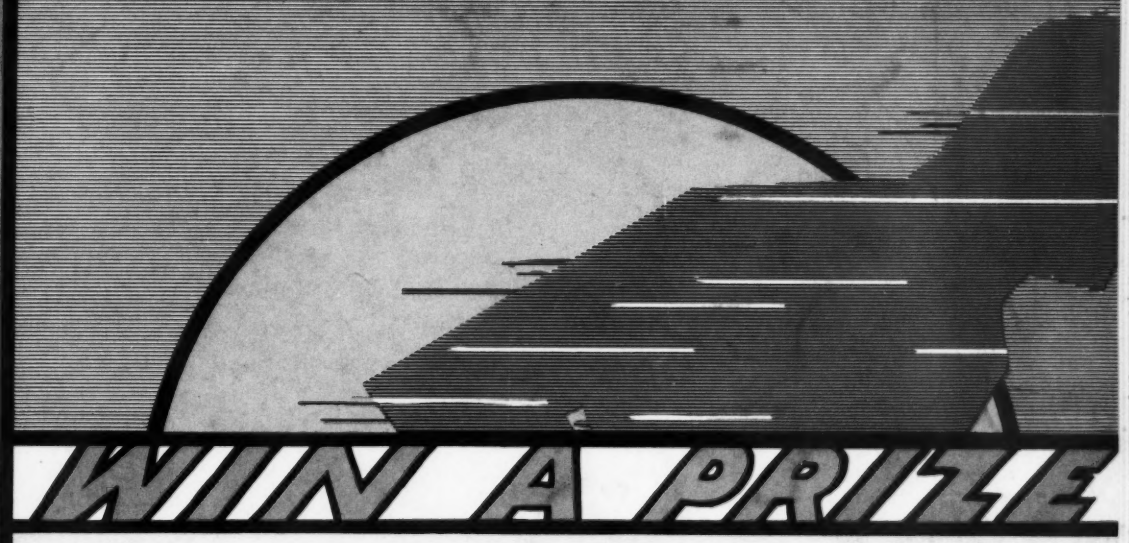
DOMESTIC ENGINEERING

PUBLISHED AT
10 PRAIRIE AVENUE
CHICAGO



Uncle Sam through the FHA is making it easier to get business. DOMESTIC ENGINEERING offers prizes to help its readers get more business

OCTOBER
1934

BETTER HOUSING PROGRAM

Plumbing & Heating Contracting and Merchandising

On every length of Republic Steel Pipe you will find the name "Republic" rolled in raised letters—not merely an identification of the manufacturer, but a hall-mark of quality symbolizing all that is back of that length of pipe and what it will do for you.

The same exactness of specifications that applies to all Republic-made products guards the manufacture of Republic Steel Pipe, from the selection of the iron ore to the finished product—careful control of furnaces, modern methods of rolling and welding, precision finishing to close tolerances, rigid inspection and checking by skilled metallurgists and engineers.

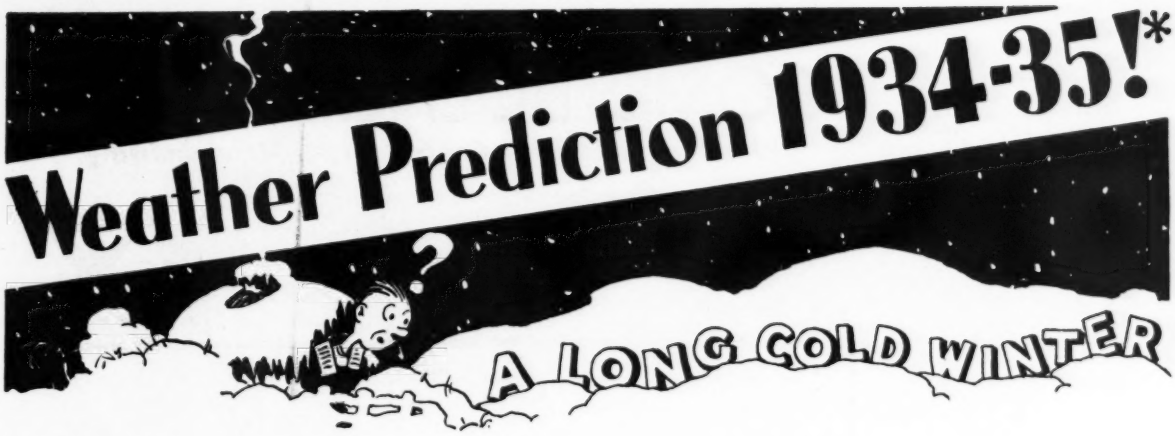
REPUBLIC STEEL PIPE

Thus, when you see the name "Republic" on steel pipe, you can feel sure that it is pipe of the highest obtainable quality, backed by the facilities, experience and reputation of Republic—that it will cut, thread, bend, weld and otherwise work easily—and that it will afford long life and economy in any installation where service conditions are not so severe as to require Toncan Iron or Enduro Stainless Steel.

Specify "Republic" on your pipe orders—it pays.

REPUBLIC STEEL CORPORATION

GENERAL OFFICES YOUNGSTOWN, OHIO

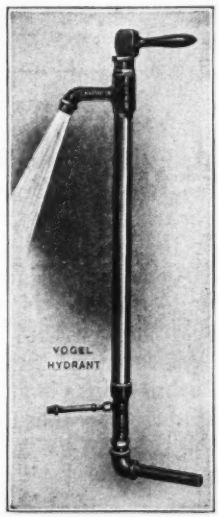


Our prediction . .

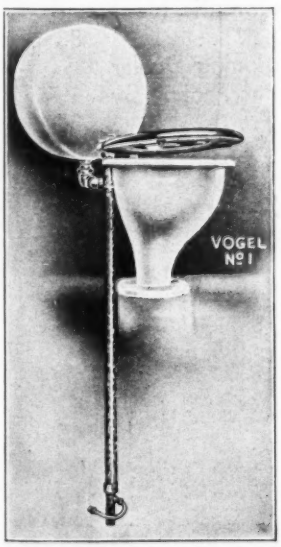
is that more Vogel Frost-Proof Closets and Hydrants will be installed, because they withstand the lowest temperatures without freezing and last for years without repairs.

Write for a supply of folders and blotters imprinted with your name and address, and send them to your customers.

*
Deer are three weeks early in shedding their velvet; beavers are building their houses high and thick; buffalo and polar bears are heavily coated, and birds are preparing to fly south. Signs reported by the Philadelphia Zoo.



Vogel Frost-Proof Hydrant

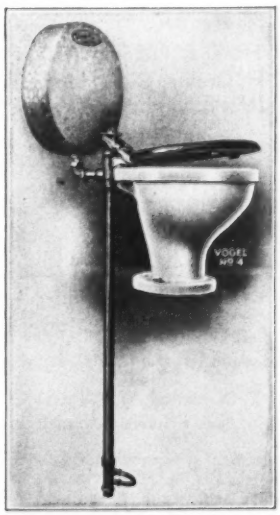


No. 1 — Frost-proof. More than 500,000 have been installed.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL
PATENTED

Frost-Proof Products



No. 4 — Best looking frost-proof closet made. Vitreous bowl, top supply.

Established 1889

DOMESTIC ENGINEERING

Plumbing & Heating Contracting & Merchandising

Vol. 144. No. 4

Whole No. 1999

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OCTOBER, 1934

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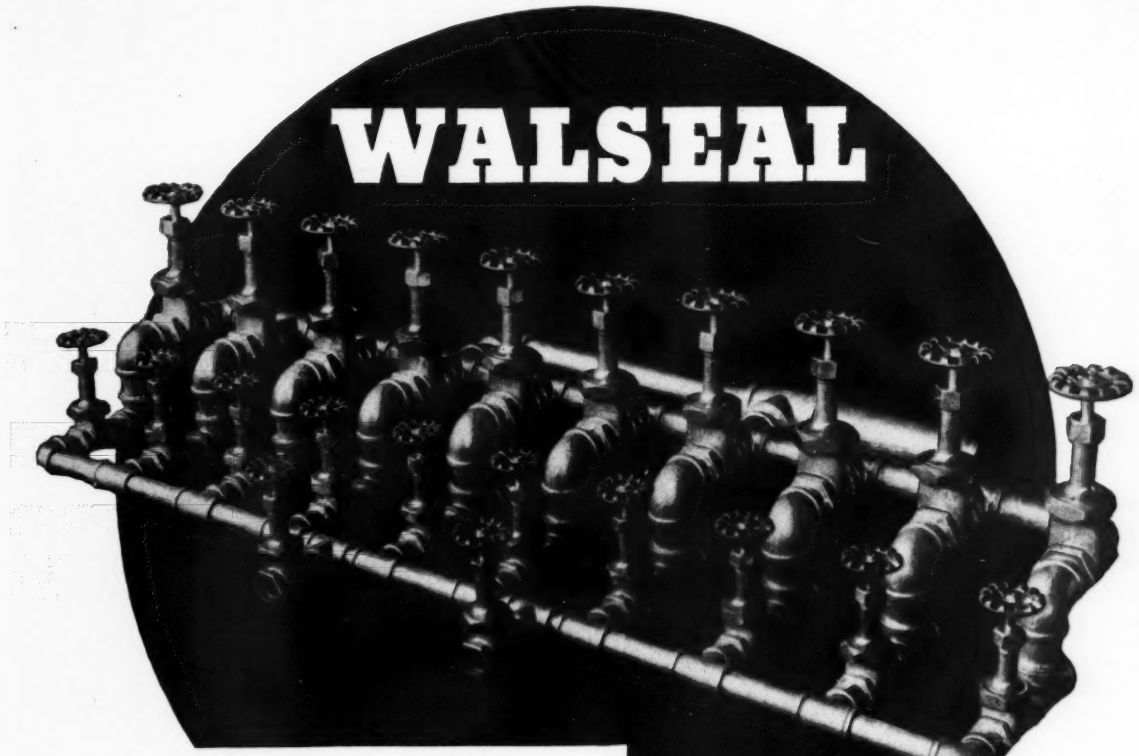
WALSEAL



promotes compact and economical pipe assemblies

The photograph tells the story. Note how the Combination of Walseal Valves and Walseal Fittings makes possible an extremely compact assembly—distances between valves and fittings can be a minimum. Unions are not used. A direct saving is thus effected.

Moreover, the time required is at a minimum when copper and brass pipe assemblies are made this modern threadless way. Cut off the pipe, flux, assemble, then braize. The finished Walseal joint is rigid, corrosion-resistant, vibration-proof, stronger than the fitting itself and is unaffected by temperatures to which copper or brass pipe can safely be subjected—it's a perfect joint.

The whole story of this modern, economical threadless fitting is yours for the asking.

WALWORTH

VALVES FITTINGS and TOOLS
Backed by 91 Years' Service

WALWORTH COMPANY
60 EAST 42nd STREET, NEW YORK

DISTRIBUTORS IN PRINCIPAL CITIES THROUGHOUT THE WORLD

UNCLE SAM IS DIRECTING

Standard Sanitary

PITTSBURGH, PA.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

THE F·H·A PICTURE

"Standard" will help you act to get your part

THE stage is set! Millions of homes need repair and modernization. Through the Federal Housing Administration, money is available. Now it's *your* turn to act!

Today, you can offer to home owners in your community, modern "Standard" Plumbing Fixtures, on time payments extended as long as three years—without down payments—without indorsers—without mortgages—without recourse—at the lowest fees on record. *But you have to tell them about it!*

To help you do this, "Standard" has prepared a complete sales campaign of streamers, stickers, mailing pieces, pictorial rotogravure broadsides. It's the most complete campaign we've ever offered. It's *your* campaign to bring *you* prospects. It's FREE! Write today for the details and *swing into action!*

NRA CODE

Remember... the Plumber protects the health of the Nation

BETTER·HOUSING·PROGRAM

g Mfg. Co.

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill. Vol. 2, No. 12

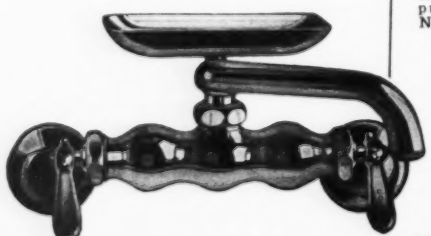
PUSH MODERNIZING NOW

Movement Gains Impetus

PLUMBING REHABILITATION IMPORTANT FACTOR

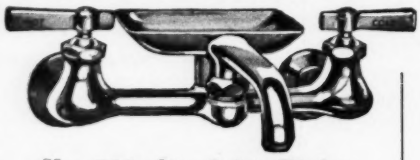
These Specialties Fill Prominent Need in Program

The big modernization drive, sponsored and encouraged by the Federal Government through the FHA and by magazines and newspapers throughout the country, is well under way. It will gain further momentum during the coming weeks. Many projects will consist chiefly of plumbing improvements, and most others will involve plumbing to some extent. Here, then, are shown and described a group of specialties from the Chicago Faucet line which, while typical of the entire line, stand out as of particular adaptability to modernization purposes. They are noteworthy for their modern design, quality construction and superior operating principle. Lifetime, trouble-free service is inherent in each one.



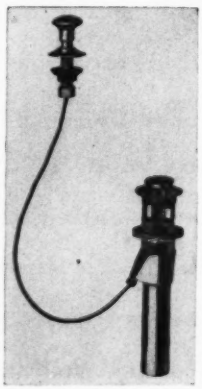
No. 444 Classic Sink Faucet

Massive, yet graceful. Equally well adapted to 8-inch or 12-inch-back sinks. Low soap dish is below top of sink back, yet overhead swinging spout is high enough for filling deep vessels. Has unbreakable metal dish and handles. There is no wear on the body, and all wearing parts are renewable, including Monel metal seats. Finished in lustrous chromium.



No. 540 Straight-Eight Streamline Classic Sink Faucet

Lower, neater, more compact, especially adapted to the new low-backed sinks. Only 3½ inches high. Adjustable from 7¼ inches to 8¾ inches. All metal, handsomely finished in gleaming, non-tarnishable chromium.



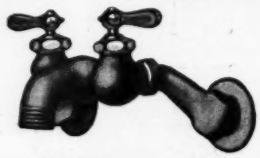
No. 634 Flexrod Pop-up Lavatory Waste

Operates by means of a strong bronze wire which directly connects knob and stopper and is enclosed in a close-coiled bronze spring. Its action is direct and positive. Fits any lavatory and is self-adjusting to all dimensional variations of centers. Drains with great rapidity because there is nothing below the stopper to obstruct the free escape of water.

A valuable feature of the Flexrod, particularly from the standpoint of modernization, is that it is the only pop-up operated through the slab that can be used to replace plug and chain on old-style lavatories without enlarging the hole from which the chain-anchor bolt is removed. When ordering for this purpose, specify No. 644.

No. 620 Brownie Shower Head

Here is a shower head that gets entirely away from the principle of ordinary shower heads in that there are no drilled holes to become clogged. The duo-circle face plates are notched at the outer edges, so that when the set screw at the end is loosened and the face plates move forward, a momentary flushing cleanses it of all waterborne accumulations. The concentrated spray of the Brownie insures a saving of from 25 to 50 per cent of water ordinarily necessary.



No. 305 Quaturn Double Laundry or Slop Sink Faucet

A very popular type. Adjustable arms and ¾-inch hose thread on spout. All wearing parts easily renewable. Rough nickel plated. Connections for ½-inch iron pipe, female, on 8-inch centers. Can also be furnished for ¾-inch pipes; also for 10-inch or 12-inch centers; also with integral stops in ½-inch, 8-inch size, and ½-inch, 12-inch size.

The Add-a-Shower

Models for Every Type of Installation

No other plumbing fixture effects, in itself alone, so great a degree of modernization as does an Add-a-Shower. It transforms an outmoded bathroom into a modern one. Supplied to fit any tub, any location of tub. No need to disturb present plumbing or mar walls. Attaches to or in place of present faucet, and, with the setting of two or three screws into the wall to anchor it, its installation is complete. Supplied with or without curtain rail as required. Equipped with Brownie Shower Head, which saves from 25 to 50 per cent of water ordinarily required for shower bathing. Every bathroom without present shower facilities is a prospect for an Add-a-Shower.

No. 488X Add-a-Shower with over-the-rim spout and Brownie shower head

Econochrome Bath and Lavatory Fixtures

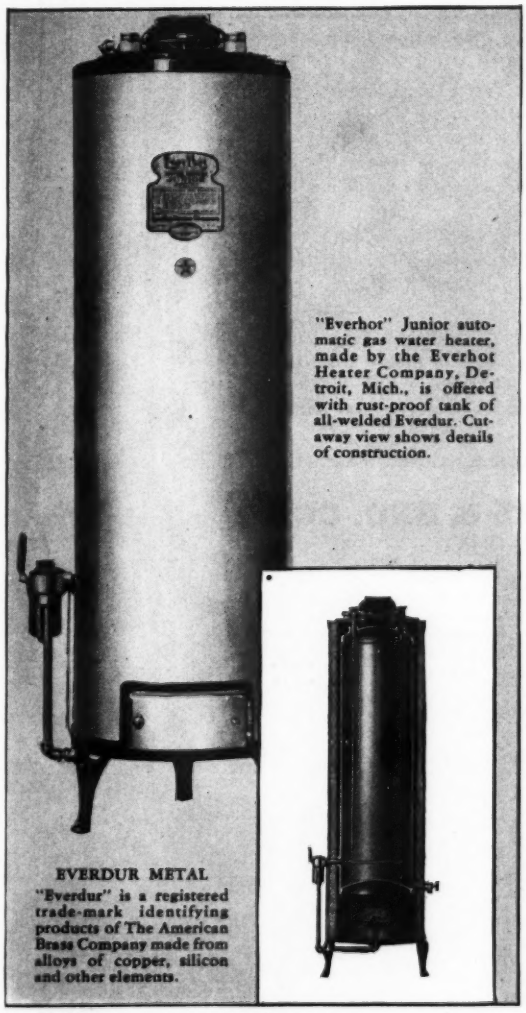
The Econochrome Line affords a really amazing combination of quality and moderate price. Standard Chicago Faucet Quaturn operating units, the best brass and fittings and chromium plating characterize Econochrome fixtures as distinctive in their price range. Features of trim are substantial and attractive. The Econochrome concealed lavatory fixture shown at the right is a typical example. It has all-metal four-arm handles, well designed stamped escutcheons, Flexrod pop-up waste with brass mixing spout, and all trim finished in heavy chromium plate—an indisputably high-quality fixture. Yet its price is extremely moderate.

No. 645. Quaturn Econochrome Concealed Lavatory Fixture with Flexrod Pop-up Waste.

THIS CAN *never* HAPPEN...

These photographs show HOW RUST DESTROYS THE WALL OF AN ORDINARY TANK
When rust begins,
it eats deeper..
ever deeper, until
..the tank fails!

Illustrations magnified three times actual size



"Everhot" Junior automatic gas water heater, made by the Everhot Heater Company, Detroit, Mich., is offered with rust-proof tank of all-welded Everdur. Cutaway view shows details of construction.

EVERDUR METAL
"Everdur" is a registered trade-mark identifying products of The American Brass Company made from alloys of copper, silicon and other elements.

IF THE TANK IS *rustless* EVERDUR!

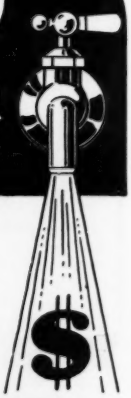
WHEN the tank is of Everdur Metal, you can assure your customers of a dependable source of rust-free hot water . . . not for just a few years, but *indefinitely.* For Everdur is an alloy of copper . . . the accepted non-rust metal. It is as strong and easily welded as steel, and lends itself to economical, virtually "one-piece" tank construction. Everdur *cannot* rust.

These are features which appeal to home-owners who are willing to pay a little more money for a much greater value. And these same features appeal to heater manufacturers . . . the leading ones equip *all* their rust-proof models with tanks of strong, rustless Everdur. May we supply you with additional information?

THE AMERICAN BRASS COMPANY
ANACONDA
General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

EVERDUR METAL *for* TANKS

200 to 10,000 GALLONS of WATER PER HOUR



MYERS WATER SYSTEMS

offer unlimited possibilities for PROFITABLE BUSINESS

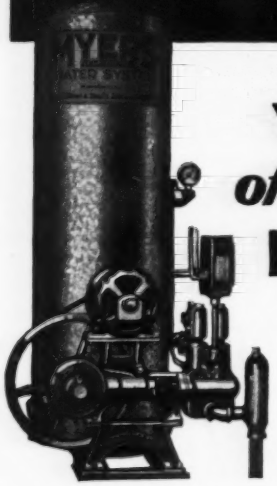


Fig. 2510

Buying impulses are changing. Farmers and others living beyond the city water main are turning to the advantages of running water and are installing modern water systems to secure this service.

Myers Water Systems have long been outstanding in this market. Possessing as they do many tried and time-tested features, with style and size spread for most any requirement, they merit their position of leadership and are being sold and installed by aggressive dealers and distributors everywhere.

Firmly established, nationally advertised and sold, quality built and favorably priced, the Myers line will place your water system business on a more satisfactory and profitable basis than ever.

If you contemplate taking on a line of water systems this Fall, or if you are thinking about changing from your present line to one of some other make, get all of the facts about Myers Water Systems before you reach a decision.

Write or wire us for catalog and detailed information.

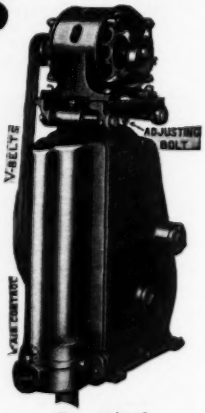


Fig. 2628

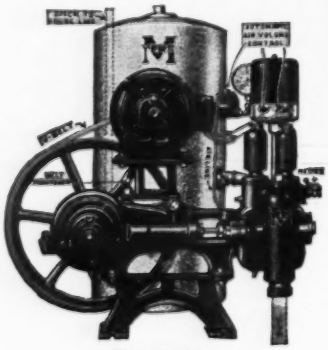


Fig. 2739

Fig. 2551

THE F. E. MYERS & BRO. CO.

ASHLAND, OHIO

The "Plan of Action to Sell Running Water to the Rural Market" is progressing splendidly. Are you participating? If not, ask us for sales and advertising helps and get started today.

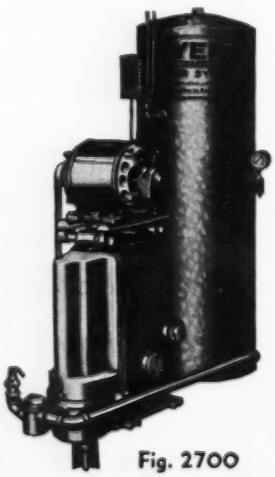


Fig. 2700

Fig. 2549

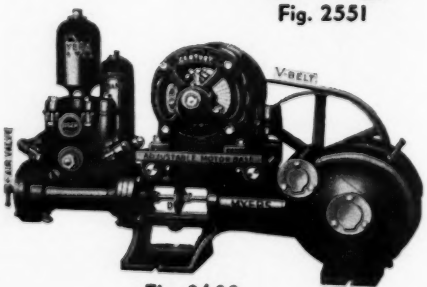
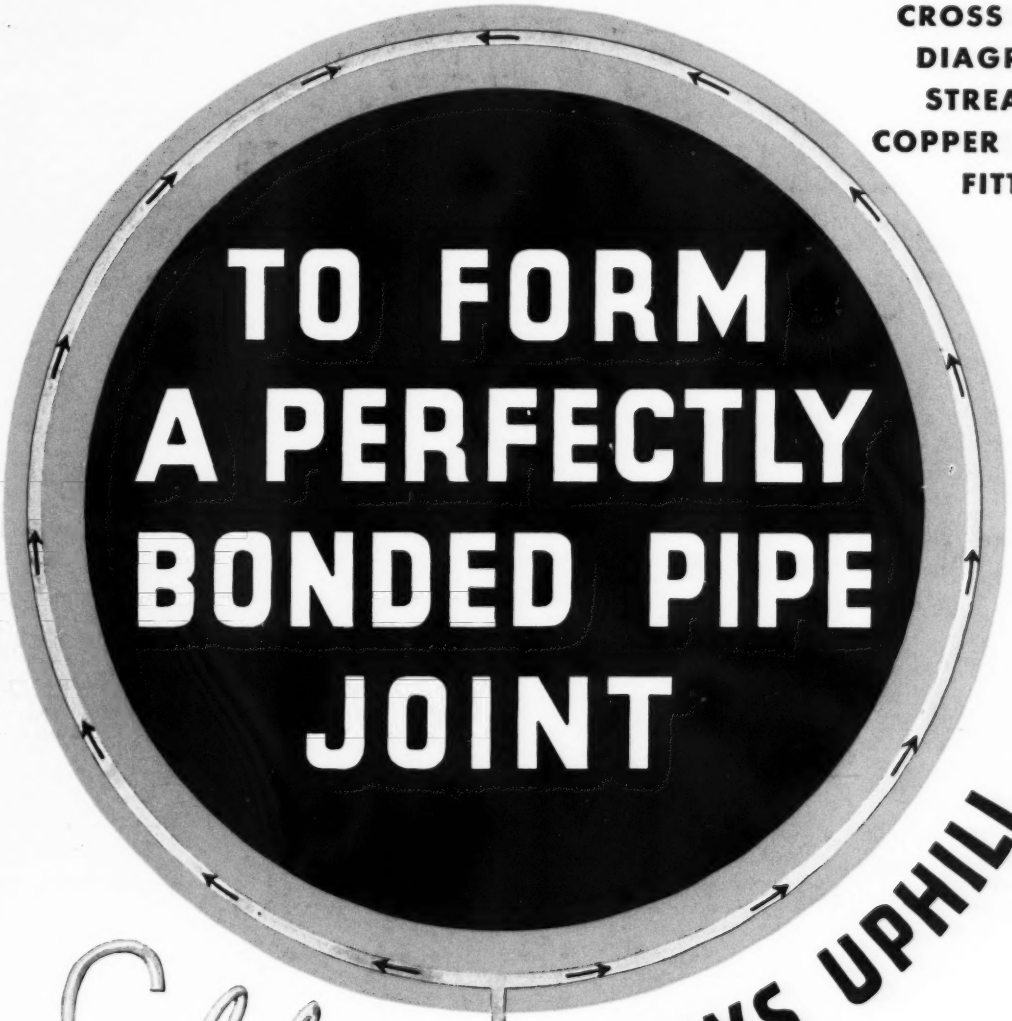


Fig. 2633

PUMPS – WATER SYSTEMS – HAY TOOLS – DOOR HANGERS



CROSS SECTION DIAGRAM OF STREAMLINE COPPER PIPE AND FITTING

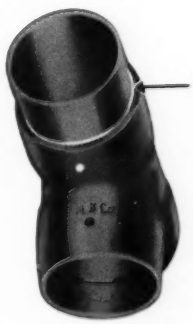
Solder FLOWS UPHILL

Capillary Action does the Trick . . .

Any Position is the Right Position!

WHEN you are ready to solder a STREAMLINE fitting to copper pipe, it does not make the slightest difference where the solder feed hole is located—whether it be right in front of you—around at the far side—at the top, or at the bottom. Solder will feed in just as readily from one position as from another. Nature's law, capillary action, does the trick every time, when proper tolerance, which is always assured with STREAMLINE fittings and copper pipe, is maintained.

Be sure that your surfaces are cleaned and fluxed—heat to the proper temperature—feed the solder THROUGH THE FEED HOLE—and let nature take its course. Any position is the right position!



VISUAL PROOF

When you feed solder INTO a STREAMLINE fitting it furnishes its own visible proof of a leak-proof, perfectly bonded joint by its appearance as a continuous silver ring at the end of the fitting around the full circumference of the pipe. When the job is properly done, pressure testing is unnecessary.

STREAMLINE PIPE AND FITTINGS
PORT HURON, CO. MICHIGAN
DIVISION OF MUELLER BRASS CO.

Leading Testing Society Approves Standardization of Copper Tube

—(So will your customers)

WHAT

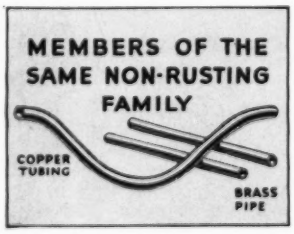
K.L.M.

MEANS

The three standard types are:— *Type K*, for underground services and general plumbing purposes with severe conditions. *Type L*, for general plumbing purposes. *Type M*, for general plumbing purposes with soldered fittings only and for normal water conditions.

Standardized Copper Water Tube meets the exacting specifications of the American Society for Testing Materials (B88-33). It also meets the specifications of the U. S. Government (WWT 799). And your customers will like it!

For Copper Tube, 99.9% pure copper, can't rust. It is especially suitable for replacement work, but is applicable to many other kinds of work. Its method of handling brings the installed cost down to a point competitive with rustable material. Copper Tube assembled with fittings of the solder or sweat type, require the skill of a competent plumber. When the soldering operations are efficiently performed, the result is a first-class, fine-looking job that will reflect to the plumber's credit and help him sell other plumbing work.



Brass pipe and Copper Water Tube are both members of the same non-rusting family. Brass pipe is the standard to which all plumbing jobs must be compared.

COPPER & BRASS RESEARCH ASSOCIATION · 25 BROADWAY, NEW YORK

SELL HEALTH PROTECTION!

CRANE DESIGNED FIXTURES...

RECOMMENDED BY MEDICAL AUTHORITIES

...PREVENT

Back-Siphonage

"A Chicago concern, the Crane Co., was the first to complete its new design, and place its correct equipment on the market."

—*Chicago Medical Society Bulletin, February 24, 1934*

CRANE is *first* with a complete line of fixtures *designed solely to end the threat of back-siphonage!*

Now you have more than *ordinary* plumbing fixtures to sell—these Crane fixtures have the approval of medical and health-protection societies everywhere!

You sell *health* when you go out after a modernizing job with these Crane fixtures!

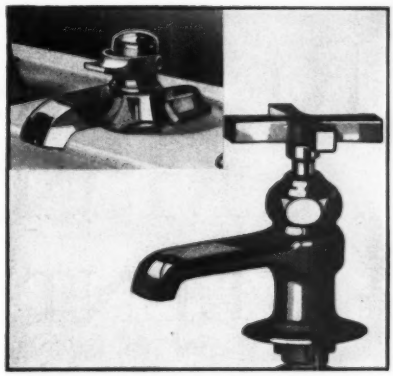
Where no back-siphonage can occur, a pure, fresh water supply is assured. Point out that a Crane-protected building is an argument that will aid rentals and create good will.

The medical fraternity recognizes Crane as authority on *health protection*—use this to sell these Crane safety fixtures in all public buildings in your territory.

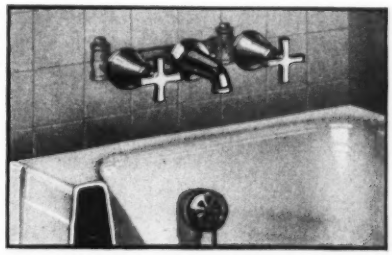
Cash in on this medical approval!

CRANE

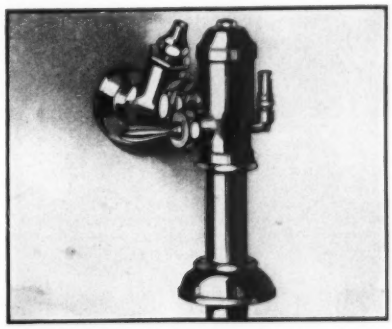
Branches and Sales Offices in One Hundred and Sixty Cities



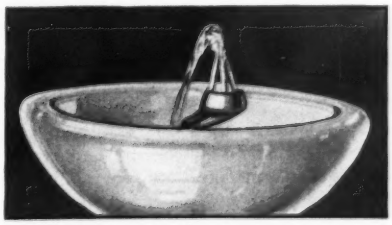
For the lavatory TELSA Faucet with spout above basin rim to prevent water in basin contacting supply.



For the bath the *Over-Rim* Tub filler placed above bath rim.



For the closet the BETA *Vacuum Breaker* Flushing Valve with check valve feature to prevent back-siphonage.

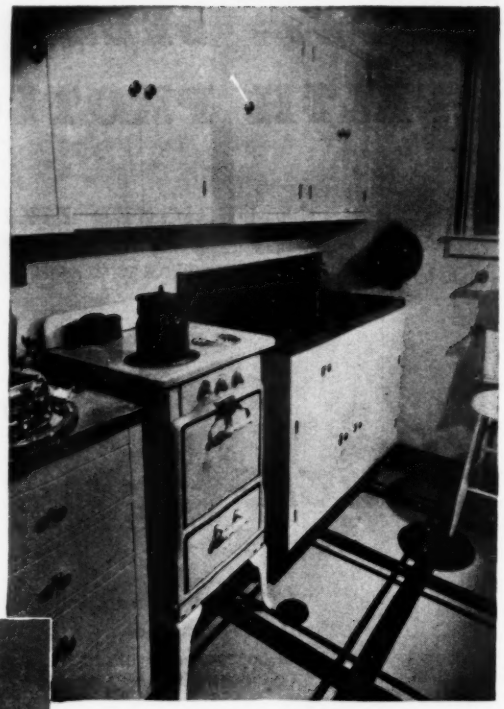


For the fountain the NEWERA 3-stream Angle Bubbler to prevent contamination. Bubbler outlet is above overflow point of fountain.

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILLINOIS • NEW YORK: 23 W. 44TH STREET

WITH REMODELING MONEY PLENTIFUL

Monel Metal Sales Go Up



When space is at a premium, Monel Metal equipment makes every inch count. Standardized sinks and cabinet tops are available in a full range of sizes to provide for every variation in kitchen layout. The above illustration shows a Monel Metal "Straitline" Cabinet Sink with back splasher and a Monel Metal cabinet top.

ABOVE—*Women are quick to realize the advantages of Monel Metal working surfaces... easy to clean, strong enough to stand up under ceaseless punishment by pots and pans, and enduringly beautiful. This kitchen shows a Monel Metal "Straitline" Cabinet Sink, also "Smartline" Table and Magic Chef Range with Monel Metal top.*

• • •

RIGHT—*Appliance manufacturers recognize the public's preference for Monel Metal. The Conover Dishwasher is incorporated in a cabinet with Monel Metal "Straitline" sink and cabinet top. Also a Magic Chef Range with Monel Metal top, and a refrigerator with Monel Metal case.*

NOBODY needs to tell you that the Federal Housing Administration is stirring a lot of your customers to remodel their homes. Thousands of folks want better kitchens. Now they are getting them. And they are getting the money to pay for them.

Here's your chance. A lot of Monel Metal sales that were hanging fire are now being closed. Monel Metal Sinks. And Cabinet Tops.

Also Hot Water Tanks (range boilers). Go after this business with the "Whitehead"* Tank made of Monel Metal and guaranteed 20 years.

Every home owner, every property owner has read Monel Metal magazine advertising.

When you talk to folks who want to modernize, remind them that Monel Metal is rust-proof, resistant to corrosion, and strong as steel. Tell them that it can't wear out. That it cleans easily. That it's a *solid* metal which can't crack or chip.

That will help you to land the profitable jobs. You'll find folks ready to agree with you when you say, "Now's the time to put in Monel Metal."

* Reg. U. S. Pat. Off.

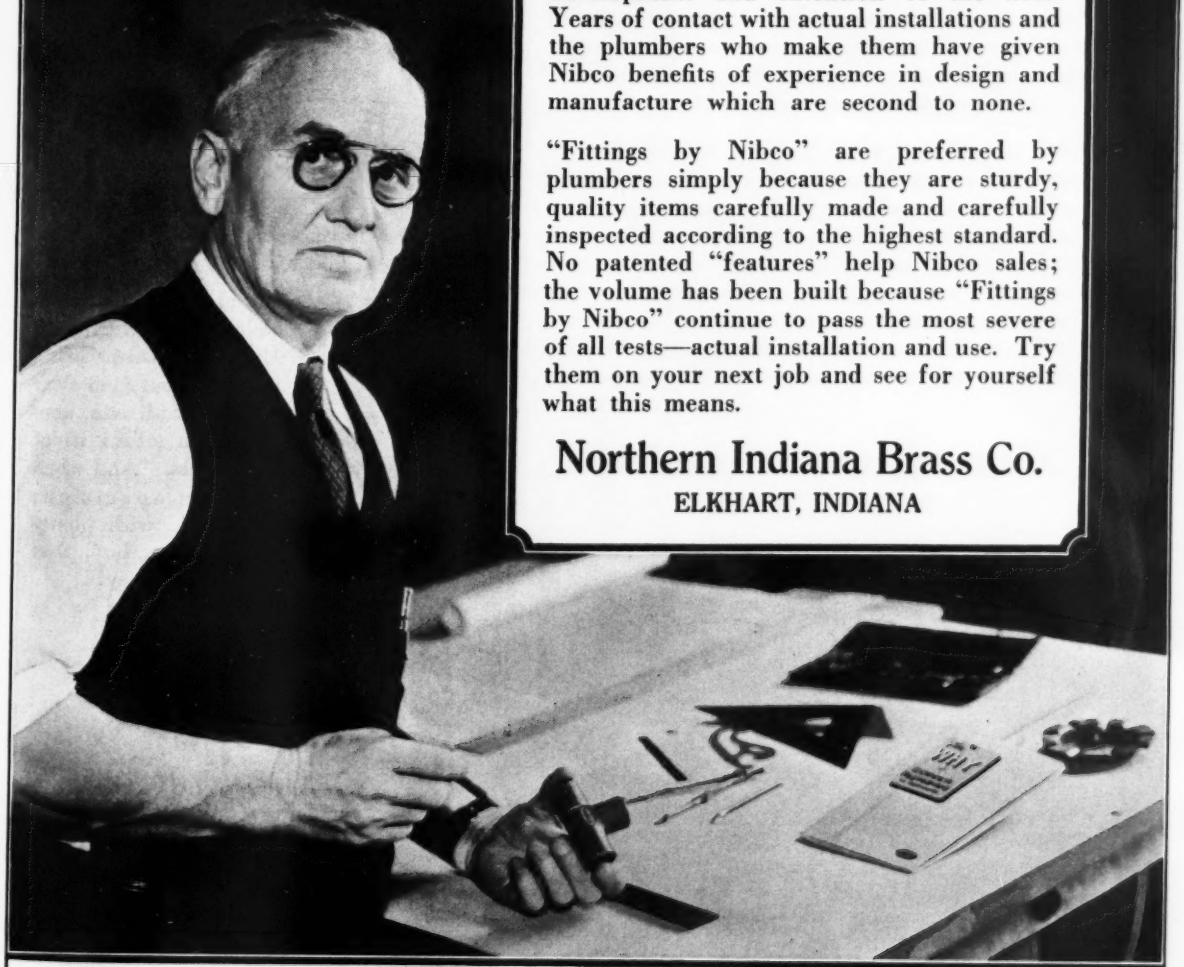
•

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET NEW YORK, N. Y.

Monel Metal

Monel Metal is a registered trademark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

Fittings by Nibco



Architects who specify copper plumbing with "Fittings by Nibco" for homes, apartments and business buildings are sure of satisfying both owner and contractor. Nibco pioneered copper fittings for house plumbing and has continuously been a leader in the development and extension of the field. Years of contact with actual installations and the plumbers who make them have given Nibco benefits of experience in design and manufacture which are second to none.

"Fittings by Nibco" are preferred by plumbers simply because they are sturdy, quality items carefully made and carefully inspected according to the highest standard. No patented "features" help Nibco sales; the volume has been built because "Fittings by Nibco" continue to pass the most severe of all tests—actual installation and use. Try them on your next job and see for yourself what this means.

Northern Indiana Brass Co.
ELKHART, INDIANA

"Fittings by Nibco" Gives You This Complete Service:

1	2	3	4	5	6
Flared Tube Fittings	Cast Solder Fittings	Waste and Vent Fittings	All Reducing Fittings	Pipe Threads to Copper Connections	Globe, Gate and Drain Valves

"Every five houses of average size that I change over with your Master 2M Valves bring me just about $150 clear profit," said one contractor in telling us of his success. "And when I get an apartment house job, with plenty of radiators, boy, that runs into money!"

WARCO MASTER 2M VACUUM VALVE

⅛" Side Outlet for Radiators

Chromium-plated. Precision-made throughout. Nickel-silver seating pins. Will not become water-logged.

Sensitive vacuum bellows—operates quickly on extremely low pressure.

The only valve that vents and vacuumises in two separate and distinct operations. Has reduced fuel consumption of oil burners 25% to 33 1/3%.

WARCO Junior 2J Vacuum Valve

⅛" Side Outlet for Radiators

Smaller than the Master 2M. Lower priced. For thosehouseholds that have to watch their pennies and dimes. Sensitive bellows type.

FASTER RADIATORS HOT LONGER MY POCKET ALL WINTER"

TENS of thousands of radiators all over the land are ready to do a first-class job this winter if equipped with Warco Master 2M Vacuum Valves.

Wide-awake heating contractors everywhere are ready to make a steady profit, and an *easy profit*, by attaching these little chromium-plated fuel savers and *vacuumizing one-pipe steam systems.* Vacuumizing means *modernizing.*

W. A. Russell & Co., famous as the originators of the volatile-liquid air valve principle, added greatly to the money-making opportunities of the heating trade two years ago by bringing out a sensational improvement in vacuum valves.

Two valves in one. A venting and a vacuumizing valve in the same shell yet operating independently of each other. Faster venting, quicker and more complete vacuums. Radiators now stay hot far longer, with slow fires, and heating contractors are getting the *credit* as well as the *profit* for performing these "miracles" on cold, balky heating systems.

Get in line for your share of this modernizing business. Order a dozen or so of these trouble-free vacuum valves from your wholesaler today in their snappy display cartons.

(Clipping from newspaper.)

900 YONKERS OWNERS PLAN HOME REPAIRS

YONKERS, July 11. — Besides the 3,500 home owners who are ready to borrow funds from the federal government under the terms of the national housing act for repairs, nine hundred plan repairs in the near future with their own funds. Arthur D. Lawrence, Yonkers chairman of the Federal commission which will administer the act, revealed this fact together with other results of a survey of homes recently completed.

There Are Hundreds of Towns Like This in America!

Now is the time to look into the heating systems in *your* neighborhood. There is good business everywhere in towns like Yonkers. Replace faulty air valves with Warcos.

Owners of one-pipe steam systems are waiting for you to tell them this simple and easy method of cutting down their fuel bills—this amazingly easy way to give them the benefits of *vacuum heating.*

Mail the coupon and full data will be sent you.

W. A. RUSSELL & CO.

Grand Central Terminal Bldg., New York, N. Y. ★ Estab. 1890

WE ARE CO-OPERATING · BETTER HOUSING · PROGRAM

Warco

MASTER 2M Vacuum Valve

W. A. RUSSELL & CO. D

Grand Central Terminal Bldg., New York. Please send information on Warco Master and Junior Vacuum Valves—also on complete Warco line.

Firm Name.....

Address.....

City..... *State*.....

NOW, *Uncle Sam will help you to sell* WATER SYSTEMS

Dealers can now meet the objection of customers who say they haven't the money to invest in a water system. Under the terms of the Federal Housing Act, financing through local banks may be arranged to install permanent water systems. When you combine the Electric Water Systems Council movement, Federal Aid and the Uniflow line you have everything you need to go after and get the business in your area. Uniflow Water Systems are priced on a low net basis to Uniflow dealers. The Uniflow line is backed by consumer advertising. Write us for special dealer proposition on any of the Uniflow products in which you are interested.

FOR SHALLOW WELLS

$35.06 NET

TO JOBBERS
Write or wire for our Special Jobber's Proposition.

THE JEWEL

A compact water system with 250 gallon per hour capacity. Patented oil system delivers oil to all parts of the pumps centrifugally. Patented feature on water box increases suction lift. One nut access makes repairs easy. Sold to the dealer on new low net price for $35.06.

$33.00 NET

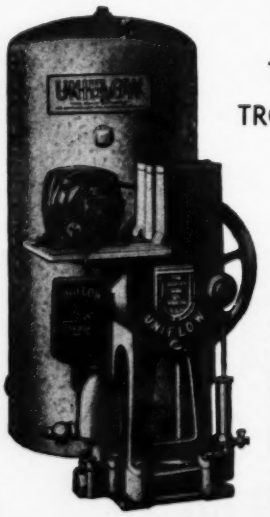
WATER SOFTENERS

UNIFLOW offers a complete line of water softeners for domestic and commercial use. The REX line is priced to dealers on the new net basis as low as $33.00. Ask for details and prices on other styles and sizes.

FOR DEEP WELLS

THE TROJAN

$70.13 NET



The pump is equipped with double spiral cut gears and adjustable bronze bearings to take up wear in gears and prevent back lash. Splash system of oiling is used. All moving parts run in a bath of oil at all times. Old oil can be drained out and renewed just as in the crankcase of your car. The ¼ horse power size delivers 200 gallons per hour at a 40 ft. depth and sells to the dealer on new low net price for $70.13.

UNIFLOW

UNIFLOW MANUFACTURING CO.
Dept. D Makers of Fine Precision Equipment Since 1921 Erie, Pa.

WATER SYSTEMS — WATER SOFTENERS — WATER FILTERS — BEER PUMPS
BEVERAGE COOLERS — ELECTRIC REFRIGERATORS — CELLAR DRAINERS

Industrial plants now feel justified in spending money . . .

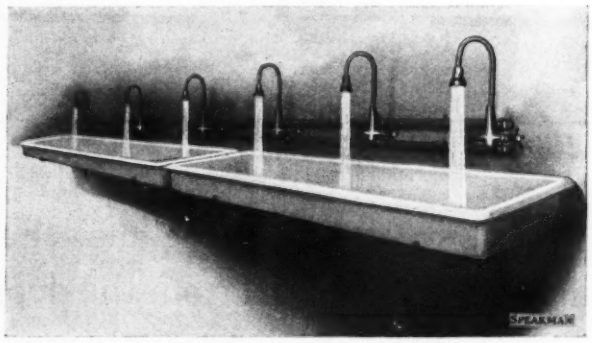
to improve washing and bathing facilities

VERY little has been done during the past four years to modernize wash rooms in industrial plants.

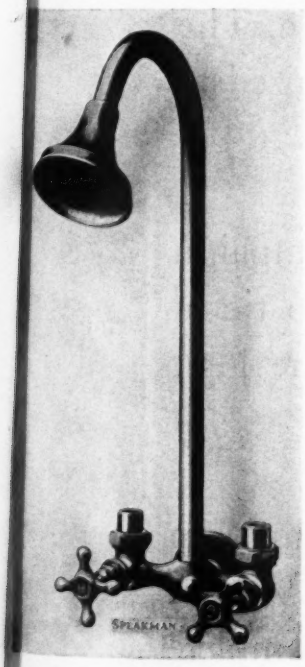
Now with conditions improving there is a lot of this work that will be done. And here is your chance — call personally on the plants in your neighborhood and tell them about Speakman Industrial Showers and Wash-ups. You will not only get jobs where you will sell and install these fixtures but in addition there will be many places that will require new piping and in others you will get the entire modernizing job.

We show on this page the types of wash-ups and industrial showers which our records show are best sellers.

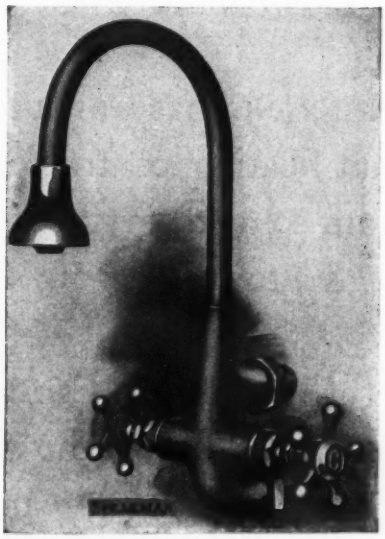
SPEAKMAN COMPANY
Wilmington, Delaware



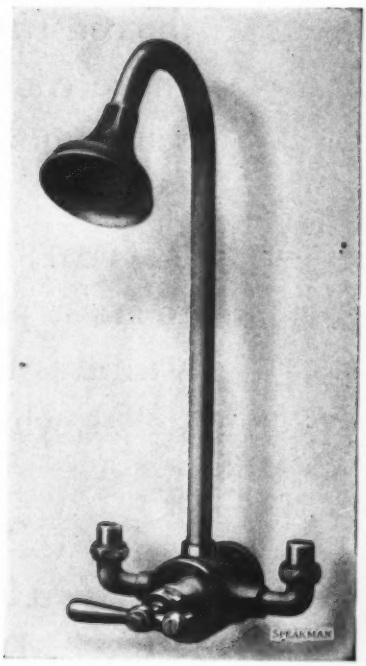
Single Battery of K-3225 Fixtures (Patented)



K-3210—Speakman Industrial Columbia Shower



K-3225—Speakman Industrial Wash-up (Patented)



K-3200—Speakman Industrial Mixometer Shower

SPEAKMAN *Showers & Fixtures*

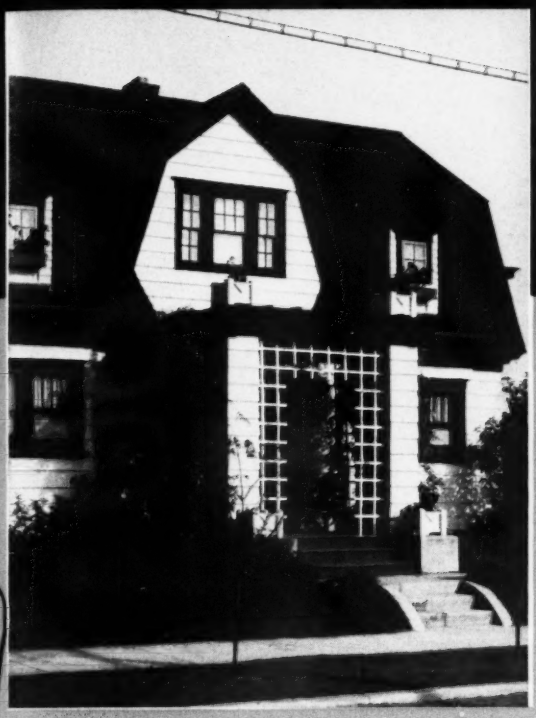
OUR TURN HAS COME!

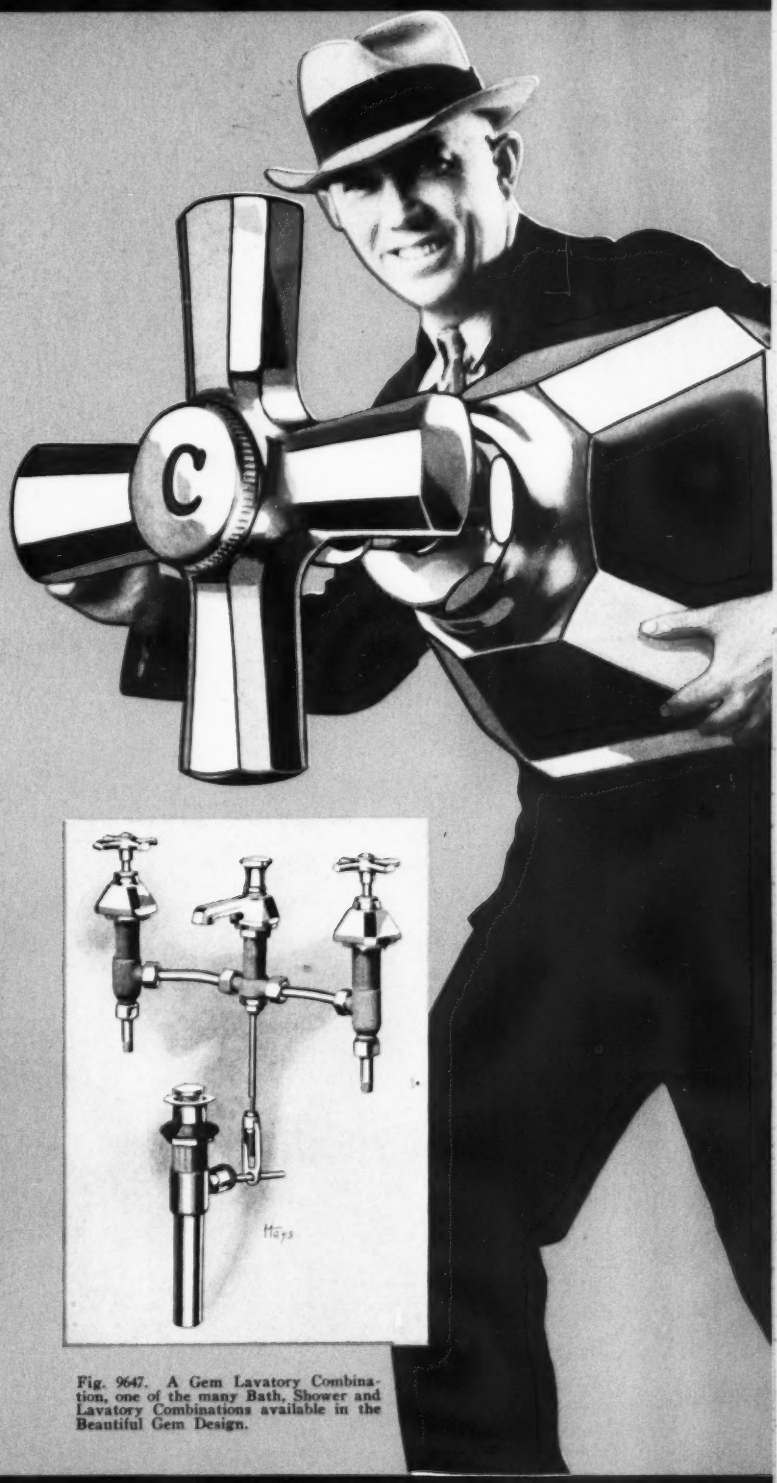
☆ The FEDERAL HOUSING ACT is the answer to the cry of the construction industry for relief from the depression. The entire country, through local groups, is being organized to sell home owners on remodeling.

☆ DOMESTIC ENGINEERING has announced its campaign to assist plumbing and heating contractor-dealers to tie in with this huge program so as to get their share of the FHA dollar, which is estimated to be over 50%.

☆ READ THIS ISSUE of DOMESTIC ENGINEERING to learn how you can get your share and at the same time, Win A Prize in DOMESTIC ENGINEERING'S campaign. Complete details are given.

CARRY HAYS GEMS
to your market - Mr. Plumber
~ ~ ~ They are right





Your UNCLE SAM
Puts 1½ Billions in Easy Reach of Homeowners

WE ARE CO-OPERATING BETTER HOUSING PROGRAM

SCORES of homeowners in your neighborhood will now go ahead with much needed home improvements. What an opportunity for you Mr. Plumber to go out and sell modern plumbing. Think of it—3 times as much will be spent in the next year for alterations and improvements than was spent last year.

Get behind the good dependable line of Hays Quality Brass and you're in the swim. Hays makes several styles of Built-in Fixtures, among them the modern GEM Line. GEMS are designed to win the approval of all classes of homeowners. They are smart enough for the finest homes and priced for the great middle class. Deep lustrous Hays Chromium keeps them always like new.

Ask your jobber about Hays—you'll find Hays a good concern to do business with and that you can depend on Hays Built-in Fixtures. Mail the convenient coupon to Hays and order through your jobber.

HAYS MFG. CO., ERIE, PA.

Fig. 9647. A Gem Lavatory Combination, one of the many Bath, Shower and Lavatory Combinations available in the Beautiful Gem Design.

HAYS *Since 1869 Quality* BRASS

COPPER PLUMBING - - - BATH FIXTURES

PLUMBING BRASS GOODS *from Street to Bath*

CLIP THE COUPON TODAY

HAYS MFG. CO.,
ERIE, PA.

Please send me a copy of the Hays catalog on Built-In Fixtures.

Name.....

Address.....

City..... State.....

NRA MEMBER U.S. WE DO OUR PART

New IN EVERY DETAIL

—but with all the MUELLER experience behind them

Here is your best answer to the big and growing demand for adaptable showers. All of the features that have made Mueller Adapto Showers so popular in the past have been heightened in these new beautifully designed, beautifully finished creations.

There is now an Adapto shower to meet every possible condition, as illustrated below. In all of these showers the water is automatically diverted from the shower head to the tub when the control valves are closed. In fact, this feature which was originated by Mueller Company, has been still more highly developed in this handsome new line of Adapto Showers.

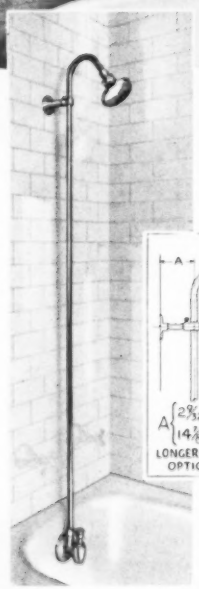
Also note that all pipes are attached to the faucets by means of adjustable ball joints to compensate for the angle of the tub. All wall flanges are furnished with a new patented toggle-bolt feature which makes installation easy, quick, and above all, secure.

Yes they are as new and fresh as tomorrow's newspaper—yet they have behind them the experience and quality that has characterized Mueller Brass goods for nearly three-quarters of a century.

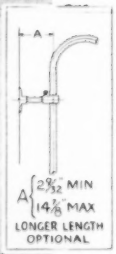
Write for a new booklet containing complete details.

MUELLER CO., Decatur, Illinois

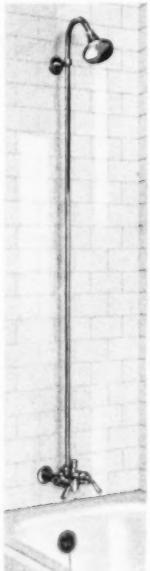
Factories: Decatur, Ill.; Chattanooga, Tenn.; Los Angeles, Cal.; Sarnia, Ont.
Branches: New York and San Francisco



H-5081 (above) ***Automatic Combination Tub Filler and Shower for tubs on legs or base.*** **Furnished complete with riser pipe, pipe support, wall flange, adjustable ball joint and shower head with 4" removable face, 24"x48" rectangular curtain rod as shown with two 6 ft. x 6 ft. white duck curtains and hooks. Similar units are available with 24" x 30" rectangular curtain rod or 24" x 42" curtain rod.**

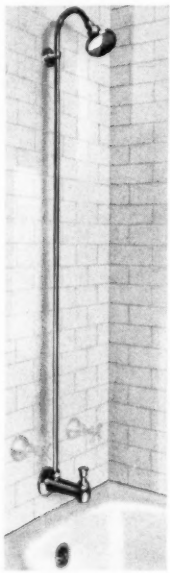


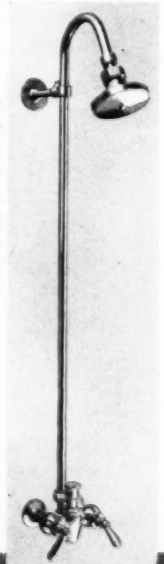
H-5084 (above) ***Automatic Combination Tub Filler and Shower for built-in recessed, or corner tubs with spout or bell flange within the tub.*** **Furnished with riser pipe, pipe support, wall flange, adjustable ball joint and shower head with 4-inch removable face. Curtain or rod extra.**



H-5079 (opposite) ***Automatic Combination Tub Filler and Shower for built-in recessed, or corner tubs with over-rim bath faucet installation.*** **Furnished complete with riser pipe, pipe support, wall flange, adjustable ball joint and shower head with removable 4-inch face. Curtain or rod extra.**

H-5080 (below) ***Automatic Combination Tub Filler and Shower for built-in recessed or corner tubs.*** **Drilled 3¼" center to center for regular bath faucet. Furnished complete with riser pipe, pipe support, wall flange, adjustable ball joint and shower head with 4-inch removable face. Curtain or rod extra.**





H-5090 (above) ***Automatic Combination Tub Filler and Shower for built-in recessed, or corner tubs with over-rim spout installation.*** **Furnished with riser pipe, pipe support, wall flange, adjustable ball joint and shower head with 4-inch removable face. Straight riser pipe regularly furnished. Pipe with offset optional. Curtain or rod extra.**

A Shower for every tub—

MUELLER
ADAPTO SHOWERS

YOU CAN ORDER EVERYTHING FOR OXWELDING AND CUTTING FROM LINDE

● *In this power house piping system almost 3,000 oxwelded joints have been made. The installation includes high and low pressure steam pipe from ½ in. to 36 in. in diameter —all with permanently leakproof oxwelded joints.*

LINDE PROCESS SERVICE *goes with* LINDE OXYGEN

LINDE Service Operators are the "firing line" for Linde Process Service, which is available to users of Linde Oxygen to help them apply the oxy-acetylene process of welding and cutting most effectively.

On the installation of miles of piping of many sizes partially illustrated here, Linde Service Operators cooperated from start to finish. They aided the customer's own engineers in selecting the materials and equipment, testing and qualifying operators of welding equipment, giving instruction in the latest developments of pipe welding and organizing the welding routine for greatest speed, dependability and economy.

Lindewelding was used on all the outside piping—over 20 miles of it. And inside, almost 3,000 welds were made. These were in high and low pressure steam lines, of sizes ranging from ½ in. to 36 in. in diameter. There were vertical lines and lines overhead and underground with many turns and special fittings.

The pipe was welded into a compact network — streamlined outside and inside. There are no projections or rough surfaces inside to obstruct the flow. Outside the jointless smoothness makes the lines easier to insulate and saves space. All lines are free from leaks under high pressure test, and will remain leakproof permanently.

Through its experience with the problems of thousands of Linde customers, Linde Process Service is qualified to translate the best practices of the day into your actual needs wherever oxy-acetylene welding and cutting is involved. The nearest Linde Sales Office will gladly give you further information.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

IN CANADA, DOMINION OXYGEN CO., LTD., TORONTO

LINDE OXYGEN • PREST-O-LITE ACETYLENE • OXWELD APPARATUS AND SUPPLIES • UNION CARBIDE

Sales Offices:

Atlanta	Houston	Portland, Ore.
Baltimore	Indianapolis	St. Louis
Birmingham	Kansas City	Salt Lake City
Boston	Los Angeles	San Francisco
Buffalo	Memphis	Seattle
Butte	Milwaukee	Spokane
Chicago	Minneapolis	Tulsa
Cleveland	New Orleans	
Dallas	New York	
Denver	Philadelphia	
Detroit	Phoenix	
El Paso	Pittsburgh	

Hoffman

A NATIONAL SALES PROMOTION

..to the best modernizing prospects in America

America has made up its mind! It's going to—*it has to* —do the modernizing work put off for four long years! So Hoffman—with the biggest promotion campaign in the valve industry—is forcefully directing home owners' attention to the amazing new comfort and economy of Hoffmanized heating systems.

Look at these leading national magazines. They carry the story of Hoffman Vacuum Valves into 2 out of every 3 homes in the country. To 60 million readers —hundreds right in *your* own business territory!

There's more! There is a complete cooperative dealer campaign waiting for you to order it—Free. A selling plan that puts you in touch with the people pre-sold by Hoffman's National Advertising. Write at once for details.

HOFFMAN

Announces

to HELP YOU SHARE in N. H. A. PROFITS

EXCEPTIONAL VALUE— PRICED 20% BELOW NORMAL LEVEL OF 1926
SOLD ONLY THROUGH RECOGNIZED WHOLESALERS OF HEATING AND PLUMBING EQUIPMENT
APPROVED BY GOVERNMENT FOR N. H. A. LOANS . . .
EASIER TO SELL . . . . BECAUSE THEY QUICKLY PAY BACK THE LOAN OUT OF FUEL SAVINGS
CONSISTENT NATIONAL ADVERTISING HAS BUILT CONSUMER PREFERENCE FOR HOFFMAN . . . .
1
2
3
4
5 Reasons why
HOFFMAN VACUUM VALVES outsell all other quality makes combined

IT'S EASIER TO SELL MODERNIZING THAT PAYS FOR ITSELF!

A flood of modernizing dollars breaks loose this Fall, with the N.H.A. providing easy credit terms. Who has a better chance of getting a good share than the heating contractor who pushes Hoffman Vacuum Valves?

Here's why! Hoffman Vacuum Valves are a self-liquidating investment—fuel savings quickly pay both principal and interest charges. That's a powerful selling argument with any home-owner—and that's the reason Hoffman Valves have been placed on the preferred list for modernizing loans.

Thousands have been awaiting this opportunity to bring homes up-to-date. Hoffman National advertising, plus Hoffman sales helps, bring these live prospects to your door. Direct-Mail Letters, Booklets, Window Banners, Metal Displays, Newspaper Mats, Publicity Articles—all are free to you for the asking.

It's your campaign as well as ours—close cooperation will bring you your share of N.H.A. modernizing profits.

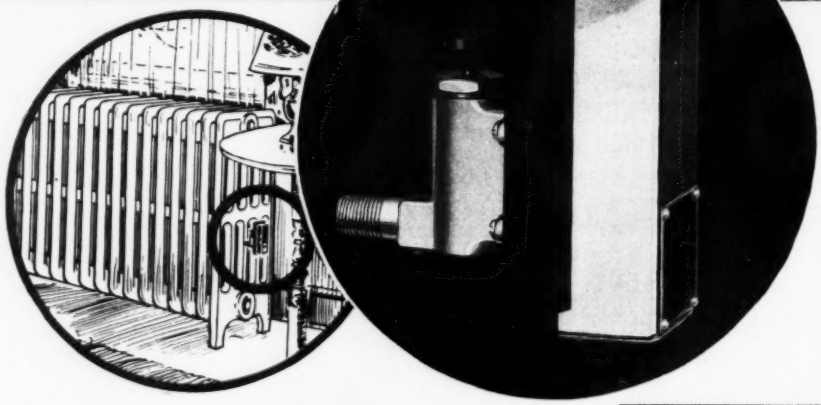
SEND THIS COUPON FOR DETAILS OF HOFFMAN'S COOPERATIVE PLAN

HOFFMAN SPECIALTY CO.
Dept. RX-103, Waterbury, Conn.
Send me folder showing how to tie in with Hoffman National Advertising.

Name .....
Address .....
City .....

SPECIALTY CO., Inc. WATERBURY CONN.

Insure SATISFACTION *for your Oil Burner Installations with Evenaire*



Install Evenaire Room Temperature Control instead of—or in place of—an air valve. It's just as simple

As every heating contractor knows, the purchaser of an oil burner buys it not merely as a means of firing his boiler, but as a means to better heating—increased comfort. If he doesn't get better room heating, he's disappointed. If he still has the same old troubles with his radiators—still suffers from faulty distribution and erratic temperature extremes—he's likely to assign part of the blame where it doesn't belong—to the oil burner.

Insure increased satisfaction for your oil burner installations this season with Evenaire. Encourage the adoption of that simple, positive means of correcting over-heating and uneven heating in one-pipe gravity systems at the point where the trouble actually exists—in the steam distribution system.

While a complete Evenaire System of heat regulation consists of an Evenaire unit on each radiator, with basement devices for periodic air charging, it is now also possible to install the push button air charger type, illustrated above, on one or more radiators. Select the radiators which have caused the most trouble; remove the air valves, and in their place install Evenaire push button units. The result will be perfect temperature control in the room, or the rooms, served.

Such a demonstration of room heating control efficiency often paves the way for a complete Evenaire installation. Certainly it corrects trouble at the actual source, and it gives the owner the final result that he wants—better heating that reflects credit on your oil burner installations.

Remember that Evenaire always pays its way in fuel saved through the elimination of overheating. Mail the coupon for a complete explanation of the exclusive and protected principle of Evenaire. Or, better still, order a push button Evenaire unit for actual service tests under whatever conditions you choose to impose. Special franchises are available now to dealers who will aggressively capitalize the advantages of Evenaire.

NATIONAL REGULATOR CO.
2317 Knox Avenue Chicago, Illinois

Learn how Evenaire

- Makes individual room temperature control possible on one-pipe systems
- Ends fuel waste and the discomfort caused by overheating
- Eliminates uneven heat distribution
- Stops pounding and hissing of radiators
- Pays for itself in fuel saved

Evenaire
PRODUCT OF NATIONAL REGULATOR CO.

Send complete information covering operation and installation of Evenaire—also facts about the push-button air-charger unit.

Individual .....

Business Name .....

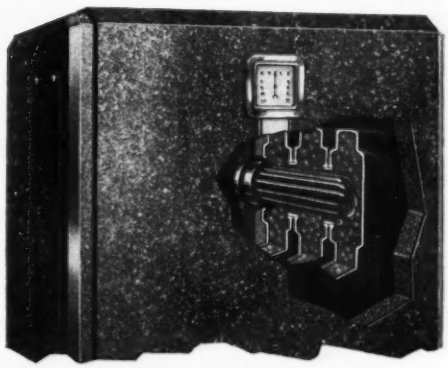
Street and No. .....

City and State .....

Mail to NATIONAL REGULATOR CO., 2317 Knox Avenue, Chicago, Illinois.

GIVES YOU HOT WATER
from the hottest part of the boiler

that's what the Burnham Oil Burning Boiler Does



That's the specially built Taco heater at the top. It screws into place. The cut-open view shows you its hottest-heat location right at the top of the boiler.

HEAT rises. Everybody knows that. That's why we just mentioned it. If heat therefore rises, then the hottest part of a boiler, is at the top where there's bound to be the most heat. Right at that heat's hottest point is where the Burnham Oil Burning Boiler, has its built-in Taco hot water heating coil.

So far as we know, there's no other square boiler that has its hot water coil, where it will get the most heat with least fuel burned.

In the Winter when firing is practically constant, it may not be so much of a saving. But in Summer, when the boiler is run for hot water heating only, it is a decided factor.

You can get some idea of how quickly and effectually the water is heated, from the fact that in a short 19-inches of fire travel, 1600 to 1800 degrees of heat are taken out of the burning gases.

How that amazing result is accomplished, is fully told in our printed matter. Send for it. You will find the Burnham Oil Burning Boiler has at least five other distinctive economy and convenience advantages, found in no other boiler.

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all Principal Cities of the United States and Canada

BETTER HOUSING PROGRAM
FEDERAL HOUSING ADMINISTRATION
NRA
CODE
FREE
INFORMATION
ON
HOME REPAIR
LOANS
CASH IN ON NEW PAYMENT PLAN
● No Down Payment
● No Recourse
● Up to 3 Years to Pay
● No Collection Fee
● No Mortgage
● No Holdback
● Lowest Finance Fee
● No Co-Makers
YOU GET FULL PAYMENT PROMPTLY
Through the Heating and Plumbing Finance Corp.
Authorized by Federal Housing Administration
Get the details in the
"Make Better Housing Mean Better Radiator Heating" package
Write Today!

out this banner..

AND TELL THE WORLD YOU'RE HEADQUARTERS FOR HOME MODERNIZATION

THIS giant banner, 3 feet by 5 feet, is just one of the attention compelling pieces in the American Radiator "Better Heating Program" sales kit. Everything you will need to tie up with the government's Modernization program...everything you will need to help you get full benefit of American Radiator's tremendous advertising, right here. Banners, posters, streamers, broadsides, mailing pieces, newspaper mats, publicity stories, Budget Books, contract forms, telephone solicitation, guarantee certificates...a wealth of material prepared by advertising experts to get business for you. Write today for this package. It cost us $5 to prepare. Examine it. If you can use it, send us your check for $1. Do it now!

AMERICAN RADIATOR COMPANY
40 West 40th Street, New York, N. Y.
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

BETTER HOUSING NEWS
Now you can have AMERICAN RADIATOR HEATING
UNDER FEDERAL HOUSING ADMINISTRATION TERMS
NO MORTGAGE!
NO DOWN PAYMENT!
THREE YEARS TO PAY!
LOWEST FEES!
NO RED TAPE!
BETTER HOUSING PROGRAM
COME IN AND ASK ABOUT OUR
Better Housing means BETTER HEATING
How to Make the Old Home NEW!
Start RIGHT with AMERICAN RADIATOR HEATING
651 Ways to Modernize the Home!
Ask for your copy of BUDGET BOOK Free!
MODERNIZATION STORIES FOR YOUR NEWSPAPER
The Great Day has come!
DEALER'S NAME

SEND NO MONEY – FILL OUT AND MAIL THE COUPON NOW. GET STARTED ON THE BIGGEST PLAN IN HEATING HISTORY.

★

AMERICAN RADIATOR COMPANY
40 West 40th Street, New York, N. Y.

Please send me the "Better Heating" package at once. If I keep it, I will send you my check for $1. If not, I will return the package.

Name_____

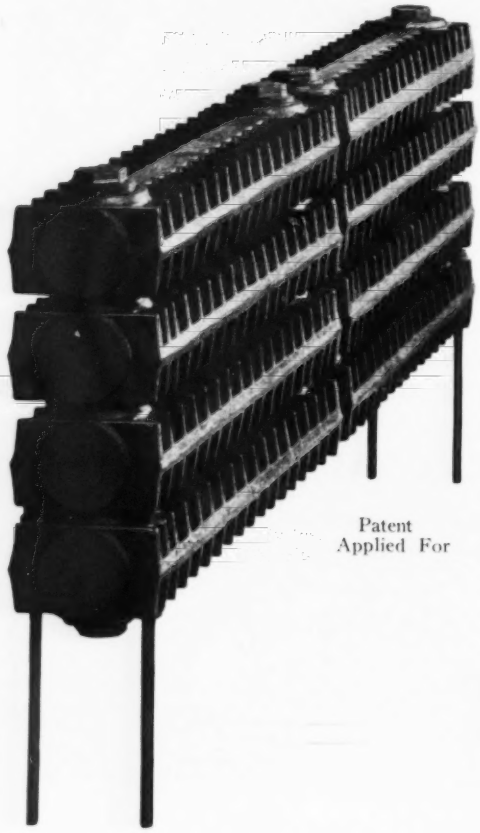
Address_____

City_____ State_____

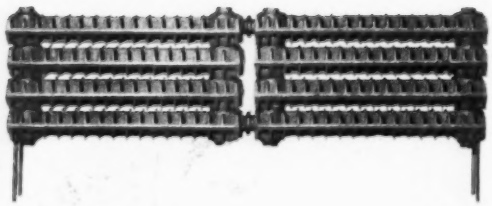
Announcing the New

UTICA CONVECTOR

Made of Cast Iron



Patent Applied For



Two views of Utica Convector, 3½" wide, 37½" long. Available in widths of 3½", 5½" and 7½".

The Utica Convector is a cast iron unit designed for installations within enclosures and to heat efficiently by convection. The design is based on sound engineering principles and good foundry practice. It is simple in construction, durable and equally well adapted for steam, vapor or hot water heat systems. The widely spaced fins will not clog and offer minimum resistance to air flow. The cored space is ample to insure positive air elimination and balanced circulation of steam or hot water. The Utica Convector is available in three widths and in multiples of 5" for any length over 18". The standard assembly is four sections high but can be made more or less on special order.

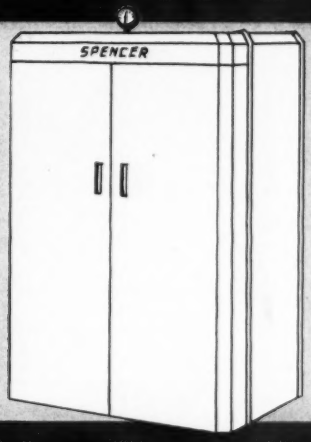
UTICA RADIATOR CORPORATION

UTICA, NEW YORK

Manufacturers of Boilers, Radiators and the famous Humid-Heet Radiators

For the First Time in History

SPENCER
Magazine Feed
BOILERS



AT ABOUT THE *Same Price* AS ORDINARY BOILERS

BURNS NUT SIZE ANTHRACITE OR COKE

This new type Spencer is designed to burn larger size anthracite coal and coke with very high efficiency. The new C-N Spencer has all the famous Magazine Feed features; storage magazine that needs only be filled once a day; automatic fuel action; and uniform fire bed, providing steady, even heat every day and all day.

New C-N Type Spencer

Sells at a price little or no higher than the ordinary flat-grate, sectional boiler. This latest Spencer meets the demands of the family that is looking for a LOW-PRICED boiler of a quality make and with magazine feed advantages.

New Time-Payment Plan

Spencer Boilers can now be sold on a New Time-Payment Plan under the provisions of the National Housing Act, and offering your customers these Liberal Terms: No Down Payment; No Mortgage; Small Monthly Payments over a period up to 3 Years.

Fuel Savings with Spencer

In offering the famous Buckwheat-Spencer, you feature the fact that this boiler burns small size Anthracite, selling for $4 to $5 LESS a ton than large sizes, and that these savings will go a long way towards covering the monthly payments under the new plan. Sell Spencer and meet the requirements of all prospects.

SPENCER HEATER COMPANY, Williamsport, Pennsylvania
Division of Cord Corporation *Branches in Principal Cities*

Low *First* Cost **SPENCER** Low *Operating* Cost

SEE WHAT YOU GET!

Advantages that save time—temper—trouble!

1. LEAKPROOF HEATING ELEMENT
An outstanding Speed Heater feature. Extended surface copper fins are forced onto copper tubes. Header joints made absolutely leakproof by special Sturtevant method.

2. PRESSURES UP TO 200 LBS.
Every Speed Heater is guaranteed to withstand steam pressures up to 200 lbs. per sq. in. They are actually operating successfully on pressures as high as 380 lbs.! Work equally well on high and low pressures.

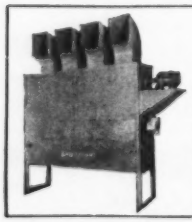
3. PIPING ECONOMY
Threaded connections for steam supply and return lines provided on both sides of heater. You simply connect to the side nearest the supply line. Saves pipe, time, labor.

4. HANDY HANGERS SUPPLIED
A big convenience. Contractors especially will appreciate it. Made of malleable iron, these hangers are quickly and easily formed in a vise to fit any condition.

5. MULTI-SPEED MOTORS
All Speed Heaters are equipped with multiple speed motors. Provides flexible control for extra fast heating and maintenance of normal set temperatures as desired.

6. QUICK SHIPMENT
You get fast, on-the-dot service when you order Speed Heaters. Most popular voltages stocked in many locations. Other standard voltages stocked at Hyde Park, Mass.

SEND FOR COMPLETE DATA



STURTEVANT
REXVANE HEATER
For floor, wall or ceiling installation. Built in a wide variety of types and sizes, ranging from 100,000 to 1,000,000 B.T.U.

B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS.
☐ Send me Sturtevant Speed Heater Catalog No. 396.
☐ Have your nearby representative call.

Name .....
Company .....
Address .....

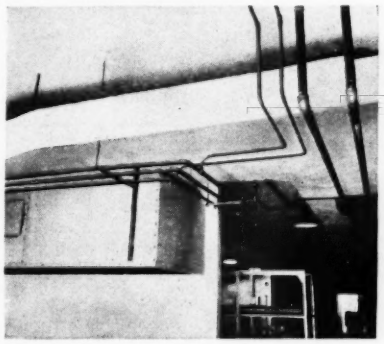
D.E. 10-34

AMERICA NEEDS the plumber!

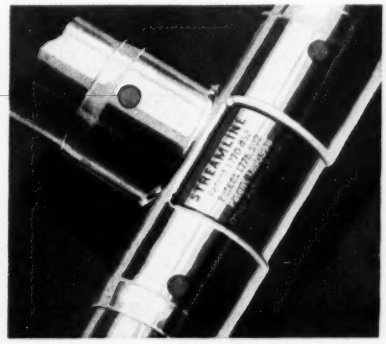
The National Housing Act is helping thousands of families to make necessary repairs to their houses. Home owners who have endured the nuisance of leaky, rusting pipes during the past few years are planning replacements. America needs the plumber, and there are jobs on every street in town. That means plenty of work for you if you go out and get it.

Revere Copper Water Tube is made to order for these replacements. It cannot rust. It will give lifetime service. Used with Streamline soldered Fittings, the finished job presents an appearance worthy of your skill. And all in all, it gives about the biggest dollar's worth of any piping material and at the same time allows you a fair margin of profit.

Some of this business may come walking in the door. But remember . . . to get your share, you have to go out after it. Here's an argument that may be helpful. Explain to people that before they decorate, they should be sure the hidden things (like piping) are fixed . . . and fixed for good. Revere Copper Water Tube, plus the skill of the plumber, is the way to fix them for good.



10 miles of Revere Copper Water Tube*



Makes installations look trim and modern

Can be worked through walls

There's a type of Revere Copper Water Tube for every purpose. Each type meets Government and A.S.T.M. specifications for this product. See list at the right and notice these features:

Revere Copper Water Tube is a cold drawn, seamless tube, 99.9% pure copper, for water supply and other uses. It is completely deoxidized and possesses a gun-barrel finish inside, free from flaws and blemishes. Used with Streamline soldered Fittings or any standard make of compression fittings, the need of excess metal for threading is eliminated . . . which results in a considerable saving in material costs. Available in Hard and Soft Tempers. Hard Temper, for new or exposed work . . . in straight 12 and 20 ft. lengths; Soft Temper, for underground services and other purposes where flexibility is essential . . . in 30, 45 and 60 ft. coils.

Investigate the opportunities for replacement and new work opened up by the three types of Revere Copper Water Tube. Address Executive Offices (see below) for full details.

REVERE COPPER WATER TUBE

TYPE K: For underground services and all plumbing purposes, particularly where water conditions are severe. Also for gas, steam, oil lines and industrial uses. All sizes, ⅛" to 6"; wall thickness ranges from .032 to .192. Recommended operating pressure: Hard Temper, up to 400 lbs.; Soft Temper, up to 250 lbs.

TYPE L: For general plumbing purposes. Suitable for normal water conditions. All sizes, ⅛" to 6"; wall thickness ranges from .025 to .140. Comes in Hard and Soft Tempers. Recommended operating pressure: Hard Temper, up to 250 lbs.; Soft Temper, up to 150 lbs.

TYPE M: Hard Temper only . . . for general plumbing purposes with Streamline soldered Fittings. Suitable for normal water conditions. All sizes, ⅛" to 6" (⅝" size excluded). Wall thickness ranges from .025 to .122. Recommended operating pressure: up to 250 lbs.

** To replace rusted-out hot and cold water lines and steam return lines, Hotel Carter, Cleveland.*

Revere Copper *and* Brass

INCORPORATED

NRA CODE

EXECUTIVE OFFICES: 230 PARK AVENUE, NEW YORK CITY · MILLS: BALTIMORE, MD. · TAUNTON, MASS. NEW BEDFORD, MASS. · ROME, N. Y. · DETROIT, MICH. · CHICAGO, ILL. · SALES OFFICES IN PRINCIPAL CITIES

Read
WHAT THESE THRUSH SYSTEM OWNERS SAY

"THE MOST PERFECT SYSTEM!"

William J. Fitzgerald, Bronx, New York City, writes—"It is the most perfect hot water system and has given me 100% satisfaction. From October first to May first for hot water supply and heat, oil cost me $160 and I need not tell you I have saved money. The temperature in my home is never below 70 degrees and my friends have often remarked how comfortable my home has been."

●

CONTRACTOR APPRECIATES IT!

William F. Smedel, New York City, writes—"I will always stick to Thrush Equipment. The job I have just installed is one of the finest working jobs I have ever seen for speed in heating. Thrush for mine any time."

●

"PLENTY OF HOT WATER!"

R. T. Platka, Treasurer, Adsit Coal Co., Burlington, Vermont, writes—"The Thrush System installed in my house last fall has been most satisfactory and we have had plenty of hot water at all times. The writer likes to stand under the shower and it has been his pleasure with your Thrush System to have all the hot water necessary. Consequently our household is very pleased with it."

●

HOTEL HOT WATER SERVICE

E. A. Stoerle, Proprietor, Hotel Paul, Woodbury, New Jersey, says—"This system of Thrush has made my hot water heating plant stand out beyond expectation. The mains were so long that before installing this system the job was sluggish and I had eight radiators that would never heat. In spite of the severe winter just past I lived warmer than I have for the previous twenty six years. Every radiator has been alive with heat."

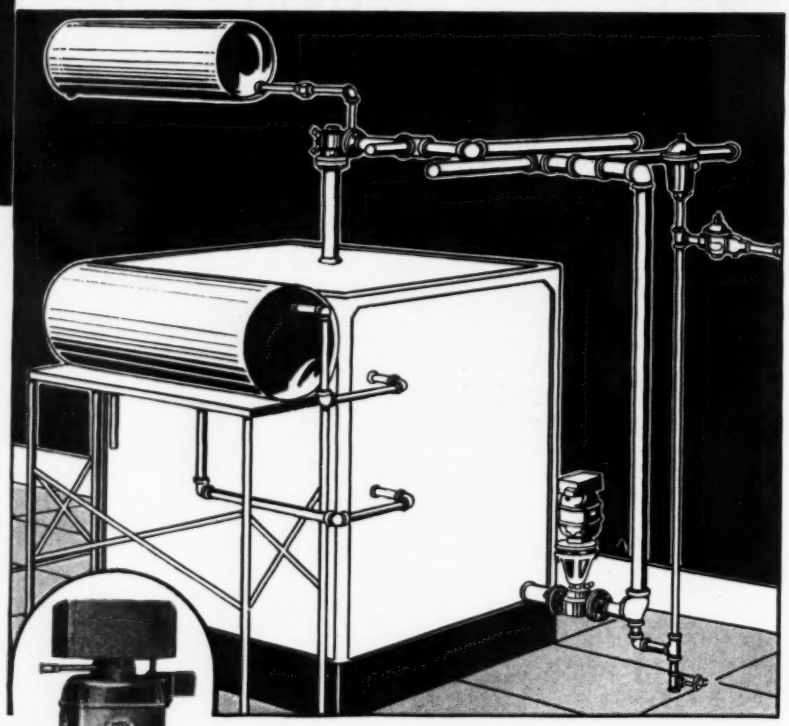
MAIL THIS COUPON

H. A. THRUSH & CO.,
Box 459, Peru, Ind.
Please send booklet describing Thrush Flow Control Heating System and its advantages or use with automatic firing devices.

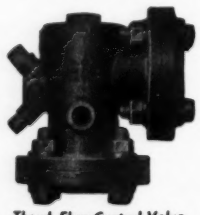
Name.....
Address.....
City..... State.....

"SAVED HALF MY FUEL BILL!" • "GIVEN 100% SATISFACTION"

• "ENJOYED PERFECT HEAT" • "100% FOR THRUSH"



Thrush Circulator



Thrush Flow Control Valve (Patented)

CUSTOMERS ARE PLEASED...YOUR BUSINESS GROWS!

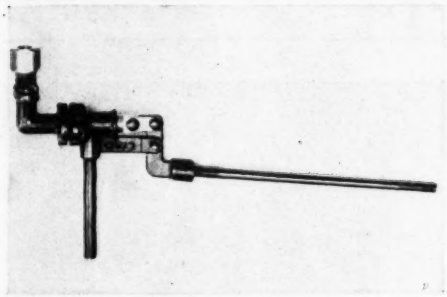
INSTALL Thrush Flow Control System with your oil burner on every Hot Water Heating job, *to insure the efficient operation of your burner*, the satisfaction of your customer, and add a nice profit for yourself.

Your business grows when your customers are so pleased that *they tell others* about the fine heating system you have installed. Thrush Control is essential to provide the home comfort expected in the home of today. It makes Hot Water Heating *quick heating, instantaneous heating!* It prevents overheating and reduces fuel cost. It assures a plentiful supply of domestic hot water as a by-product. Read the sincere, enthusiastic letters at the left—they are most convincing evidence. *Then mail the coupon for our new booklet.*

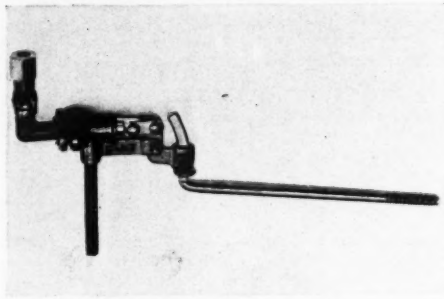
H. A. THRUSH & COMPANY
PERU, INDIANA

THRUSH

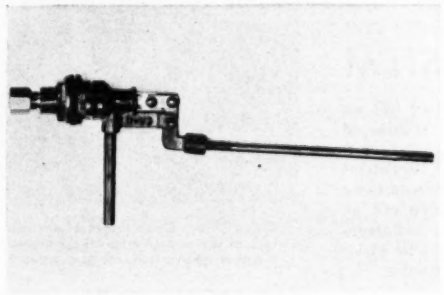
FLOW CONTROL FOR HOT WATER HEAT



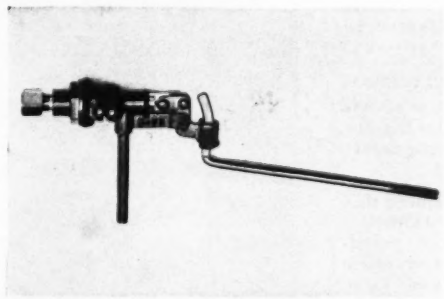
No. 210 Installed through pan-cover. Float position set.



No. 215 Installed through pan-cover. Float position adjustable.



No. 220 Installed through side of pan. Float position set.



No. 225 Installed through side of pan. Float position adjustable.

The M-VB Humidifier Valve can be installed in half an hour — without dropping the fire. Drill the pan or pan-cover for the valve, drill a convenient pipe-line for the strap-valve. Ten feet of streng copper tubing (for the connection) comes with each unit. The complete installation is packed in neat box, with full instructions.

NOW...

M-VB HUMIDIFIER VALVES FOR EVERY INSTALLATION

Now you can get the famous M-VB Humidifier Valve in four different numbers—for any type of warm-air furnace water-pan. Pan-cover or side-of-pan installation. Set or adjustable position of float. Wherever there is a warm-air furnace—with hand-operated valve or no valve at all—there's a prospect for you.

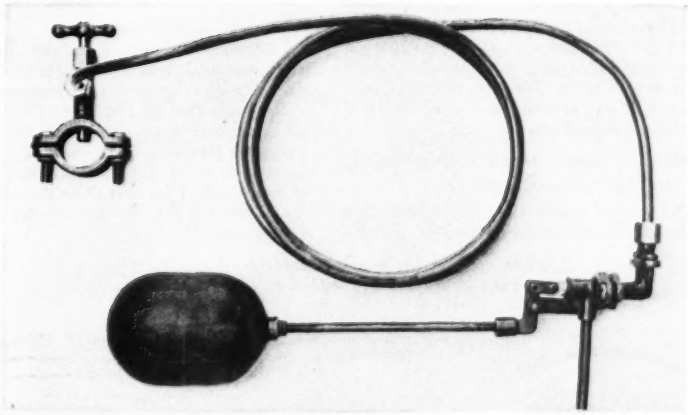
All four numbers control humidity automatically, accurately, without attention. Can't corrode or stick, because all moving parts are above the water-line. And there is famous M-VB quality in all of them: first-class design, materials, and workmanship. You can be sure of an installation that will add to your good reputation.

Plumbing and Heating Contractors, ask your jobber for details. Or write direct for the free descriptive folder that explains the various uses of all four numbers.

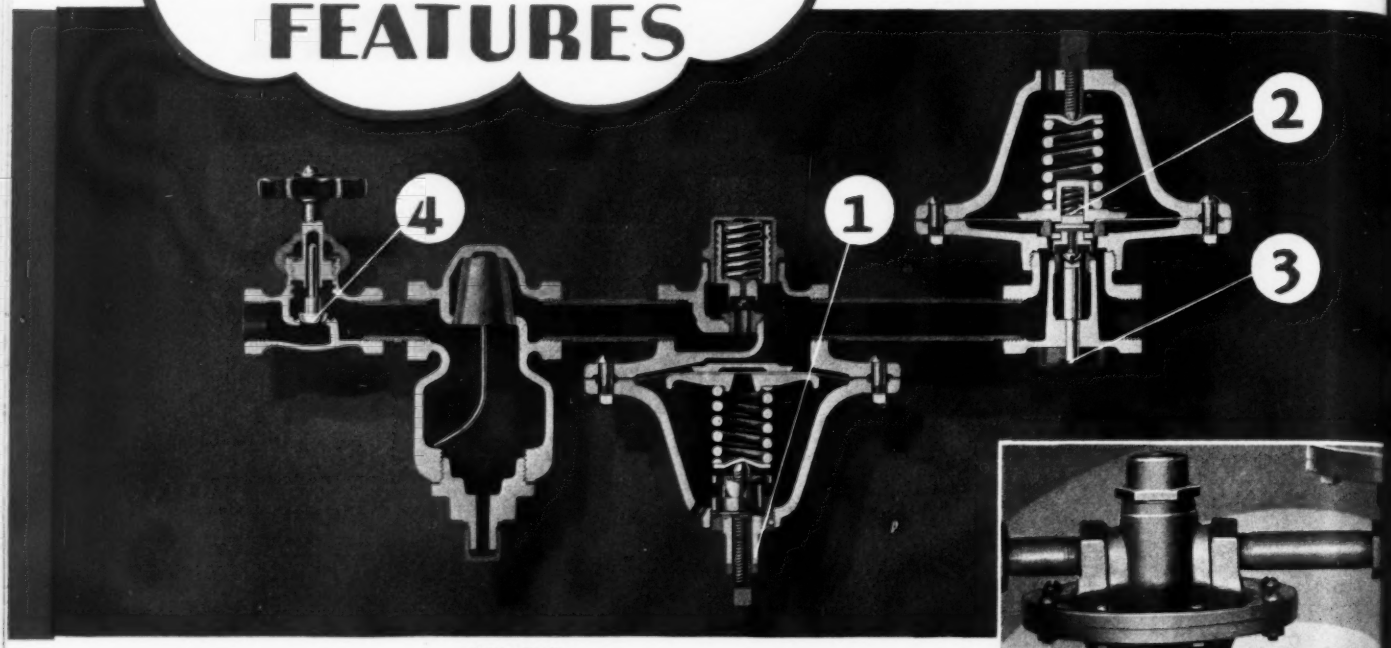
MORENCY-VAN BUREN DIVISION
SCOVILL MANUFACTURING COMPANY
STURGIS MICHIGAN

A COMPLETE LINE OF CLOSET TANK FITTINGS

M SCOVILL V B



CHECK THESE IMPORTANT FEATURES



Patents Pending

— and you will know why so many heating contractors are installing the still more dependable MUELLER SYSTEM

From the day Mueller Co. pioneered the idea, thousands of contractors have stood by the big red Mueller System—have considered it the only device that has steadily proved itself equal to the all-important job of regulating and protecting the hot water heating system.

And now this always dependable Mueller System has been revolutionized. Recently re-designed, it now incorporates features that are found in no other system. Here are some of the more outstanding of these new features:

(1) Quick-filling feature cuts steam fitter's time from hours to minutes—

Note the spiral cam (1) which enables you to open the regulator valve with a quarter-turn of a wrench. The system is filled in a few minutes, and another quarter-turn restores the regulating valve to its original setting and normal operation. The saving in labor alone, that results from this feature, will pay the added cost of Mueller quality and dependability.

(2) A relief valve sensitive within 5% of pressure variation—

To the many proved qualities of the dependable relief valve has been added a totally revolutionary feature. An auxiliary spring (2), as shown in the illustration, removes the load of the heavy diaphragm spring from the valve seat, making the valve more sensitive, and therefore giving more positive protection than was ever before possible. With the relief valve set at 25 lbs., it will begin to exhaust at the set pressure and be wide open at 27 lbs. It will close tight with a corresponding drop in pressure.

(3) Relief valve easily hand-tested—

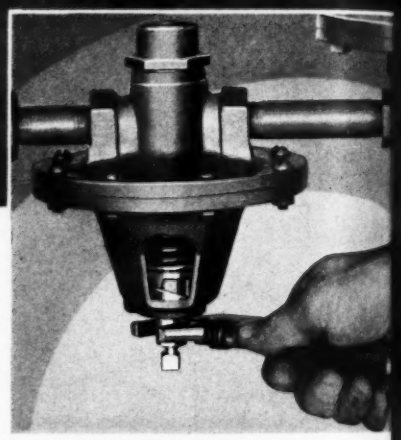
Simply insert a screw-driver in the lug (3) as shown in the illustration, and the projecting lift rod may be easily lifted to unseat the relief valve and test its operation. The test is made in less time than it takes to tell it.

(4) Wider opening stop and check valve—

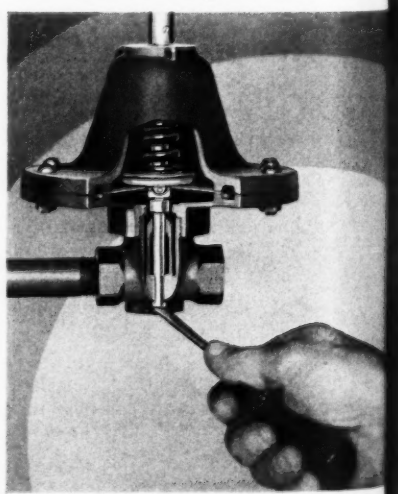
A combined stop and check valve has always been included as a standard part of the Mueller System, and now this too has been greatly improved.

Check these features carefully. Remember that they are added to other time-proved Mueller advantages—bronze diaphragms with practically twice the area of those found in any other system, working parts of Mueller Bronze, large effective strainer, independent units with free, open water passages, and finer construction throughout. You will then decide to play safe by installing the Mueller System on every hot water job.

(To win new friends for the Re-designed Mueller System we are offering a liberal trade-in on all systems replaced)



Quick Filling: Open the regulator valve with a quarter-turn of the wrench and fill the system in a few minutes. Another quarter-turn restores valve to original setting.



Easy Testing: Insert screw driver under lift rod and unseat relief valve to test its operation.

MUELLER CO., Decatur, Illinois

Factories: Decatur, Ill.; Chattanooga, Tenn.; Los Angeles, Calif.; Sarnia, Ontario

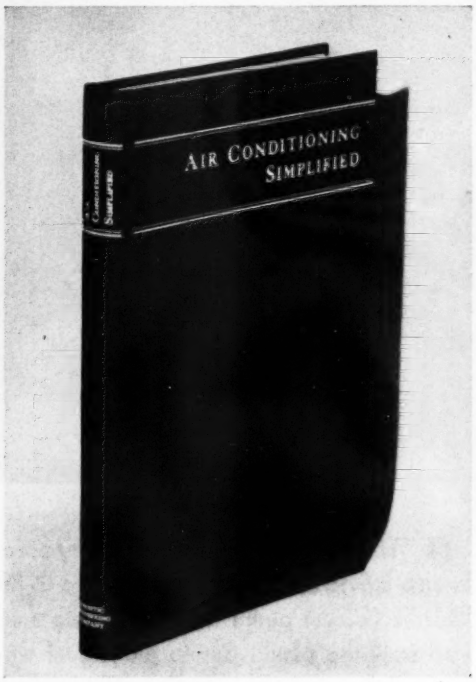
Branches: New York and San Francisco

Stocked by your Plumbing and Heating Supply Jobber

MUELLER SYSTEM

FOR AUTOMATIC REGULATION OF HOT WATER HEATING

AIR CONDITIONING SIMPLIFIED



★

A new book which contains information every man should know about air conditioning.

★

AIR CONDITIONING SIMPLIFIED, as its name implies, is a simple, easily understood book that takes the mystery out of air conditioning—it tells what it is—how it works—how it is installed —and how it is sold!

This new book has back of it three years of planning and preparation. It is divided into three main parts.

The first part, covering the theory of air conditioning, gives a simple but thorough explanation of the mechanical end of an air conditioning system. It contains facts from the pens of the best authorities in the country—men like Samuel R. Lewis, Walter L. Fleisher, A. M. Daniels and over fifteen others. It has all been compiled and edited by the well known heating authority, Harold A. Alt.

Part two describes in detail a number of actual installations, including floor plans, working drawings, detailed drawings of equipment, etc. There is no theory here—just plain examples of what has been done, the cost, etc.

The answer to the question "Can Air Conditioning Be Sold?" is well illustrated in the third part. Here you see just how air conditioning is being sold. Other contractors are selling it and here you will find out how they go about it.

We recommend this book with the utmost confidence that it will give you an entirely new slant on air conditioning. Go through its pages. Find out for yourself why we recommend it as the best book to meet the needs of the air conditioning industry of today.

The book, for the time being, is priced exceptionally low at $1.00. This $1.00 is based on "depression" priced printing, paper and binding. But now "depression" is over. Paper, printing, engraving and binding have skyrocketed, sending costs high in the air. When the first edition is exhausted the price of $1.00 will undoubtedly have to be raised.

So fill in the coupon below. Pin your check for $1.00 to it and mail it today. Money back if you are not completely satisfied.

CAN YOU ANSWER THESE QUESTIONS?

In figuring cooling, how much radiant energy from the summer is absorbed by window glass?
To what extent will awnings reduce the cooling load for a home?
How can the cost of cooling be figured on the degree-day basis?
How can a home be dehumidified and cooled using gas heat?
How much does it cost to air condition a home in both summer and winter?
How should you go about cooling a residence using ice?
Do you know how to design ducts for air conditioning?
How can Noise be eliminated?
What is steam jet refrigeration for air conditioning?

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Please send me one copy of AIR CONDITIONING SIMPLIFIED for which I enclose $1.00. I am to have the privilege of returning this book if it is not what it is claimed to be.

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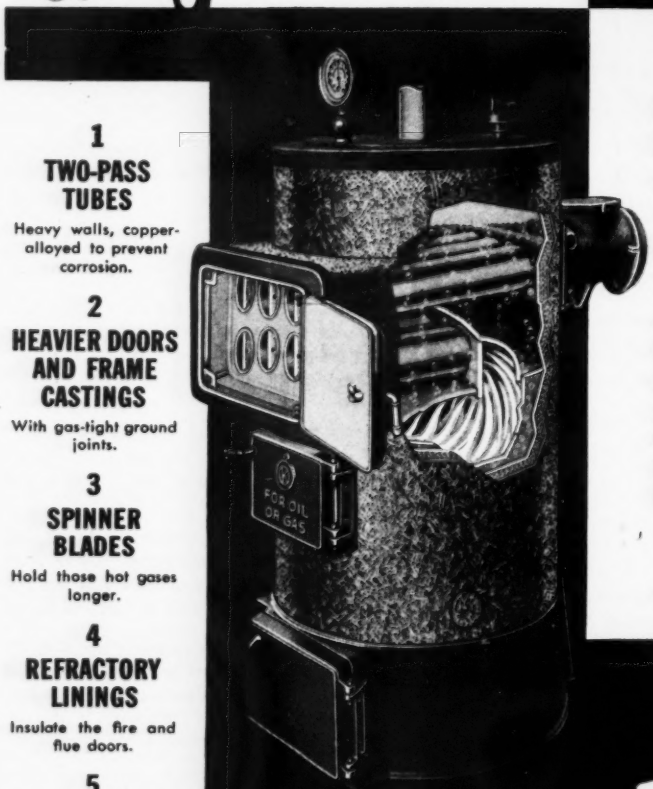

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Heavy walls, copper-alloyed to prevent corrosion.

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With gas-tight ground joints.

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Hold those hot gases longer.

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● "Things are not always what they seem." Even a movie extra can be dressed up to look like the fiercest pirate that ever made a seaman walk the plank. But to judge real worth . . . whether in men or boilers . . . one must find out what's inside.

Kewanee believes in appearance, of course. And *any* Kewanee is a credit to *any* basement. But under the jacket are features of design and construction gained from the knowledge and experience of 66 years of building. It is on these "inner qualities" that we stake our reputation. It is these "inner-qualities" which insure LONGER LIFE . . . BETTER PERFORMANCE . . . LOWER FUEL BILLS.

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Dole PERFORMANCE means PROFIT for you

Econ-o-vac No. 100—
Its performance story
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Dole Air and Vacuum Valves have consistently led in sales increases and operating efficiency. Their *performance record* is an outstanding reason why Dole Valves each year earn good substantial profits for jobbers and steamfitters.

This applies even more directly to you and your profit:

DOLE VALVES

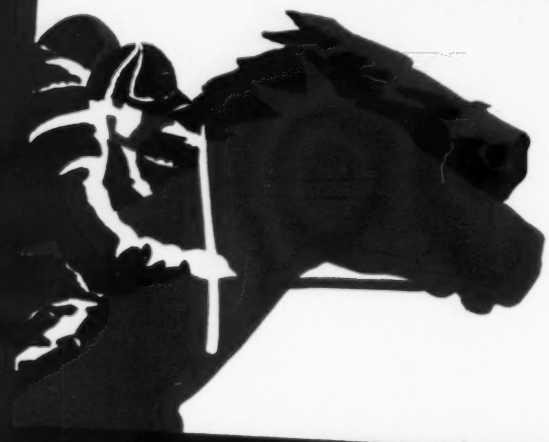
Dole

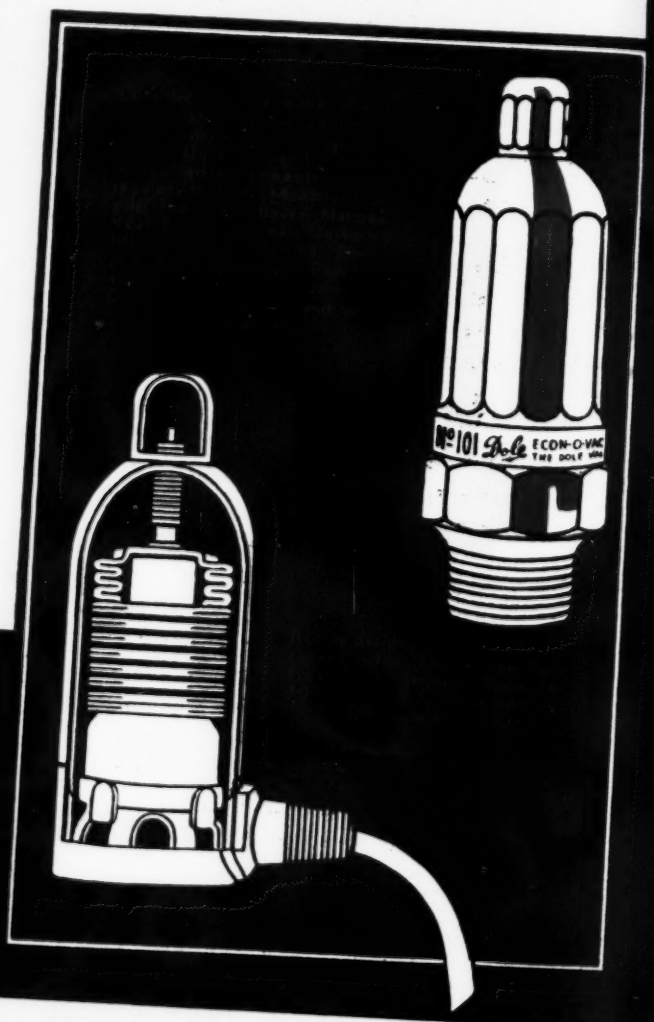
PERFORMANCE *becomes* YOUR PERFORMANCE

in the Mind of Your Customer

Every satisfactory job you ever did, built up your reputation for "performance"—just as each successive year of good valve performance has built up ours. When you link these together—*Dole* Valves on *your* jobs—*you are part of a winning combination.* And the reward is an easier profit than most other items will bring you. Besides the profit is practically nailed down; for one of the Dole performance records is the negligible returns out of millions sold. Profits are not wasted by "call backs" for service and adjustment.

PERFORMANCE—This alone is reason enough for you to buy and sell Dole Air and Vacuum Valves, but there are others: Generous company policies, wide distribution of jobbers' stocks, and prices that *include profit* without sales resistance.





Dole

AIR AND VACUUM VALVES

THE DOLE VALVE COMPANY

1901-1933 CARROLL AVENUE, CHICAGO, ILLINOIS, U. S. A.

Offices and Representatives in all Principal Cities

OVER

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Send for Your Copy TODAY!

• This new booklet is just off the press. It's chock-full of practical up-to-the-minute information about "Bridgeport Copper Water Tube" and its installation.

Write for a copy now, and keep it handy when you plan remodeling jobs.

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BETWEEN OURSELVES

Thanks:
"We find your magazine, Domestic Engineering, very interesting and helpful."
T. B. S., Vermont

Win a Prize!

Most everyone likes to win a prize. Usually the opportunity comes when trying to do a job in which we have little or no experience. We are asked to become a poet over night when what we really know best of all is how to sell and install a first-class plumbing and heating job.

This Is Easy

This issue brings you the news about DOMESTIC ENGINEERING offering more than 100 prizes to its readers during the next few months. And the way to win a prize is to keep on doing the job you know best of all and then tell the Editor about it so that the best sales methods can be selected by the judges and promptly published in our columns for the benefit of your fellow readers all over the country.

A Big Program

What started all this is, of course, the big, new national housing campaign. The way this has taken hold and the new enthusiasm which it has brought to thousands in the building industry is a surprise even to those who were most optimistic about its promised results. As one of the high officials told at a recent meeting, the FHA in two weeks has 1,200 cities making drives to help the building industry.

Big Losses

You know that a lot of homes and buildings need repair, but possibly you have never had positive figures from government sources to show you just how many millions do need remodeling badly. Or again, have you known how many millions of buildings are depreciating so rapidly through a lack of proper upkeep that further delay in ordering repairs will be a costly mistake for the owner?

Ready to Borrow

One of the first comments of a man who has not studied this new housing movement is that people with money or with a steady income will not go into debt as their every effort for the past few years has been to keep out of debt. When this viewpoint is put up against the actual results being reported from the housing campaign, one has to change his first opinions.

More Prospects

It is being found that the enthusiasm which the program has stirred up among all the hundred and one branches of the building industry, reinforced by the active support of thousands of financial organizations, civic groups, and even business men from other lines, is bringing out from under cover many thousands of prospects. As we are told by many of our readers, they are getting more inquiries now than at any time in the past three or four years.

Paying Cash

The interesting thing is that so many of these prospects who finally decide to go ahead with remodeling, decide at the same time to pay cash for the work. There are many good reasons why the owner with cash or with a fixed income should order his repair work done now and quite evidently many thousands are agreeing with that viewpoint.

A Front Line Job

The plumbing and heating dealer is the vital factor in the success of this housing program. As the point of contact with the customers, he is called upon to translate the many sales ideas offered, as well as the information on the products he handles, from the manufacturer, from the wholesaler, and from federal sources, into the mind of the customer. And one of the big things about this new national program is the quick and positive way in which the plumbing and heating dealer has taken hold. This office has received hundreds of indications of the way in which these plumbing and heating dealers have started a drive for remodeling work.

You Can Win a Prize

Our prize offer is made for the purpose of increasing the effectiveness of the dealer. We want the best sales ideas made promptly available to dealers everywhere. Consequently we are offering these prizes in order that you will tell us more quickly just what methods you have found successful and we in turn can pass the best information along to other readers.

Let's hear from you.

Your Editor

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If you want your customers to get the most for their money — sell the WISECO Combination Lavatory and Waste Fixture.

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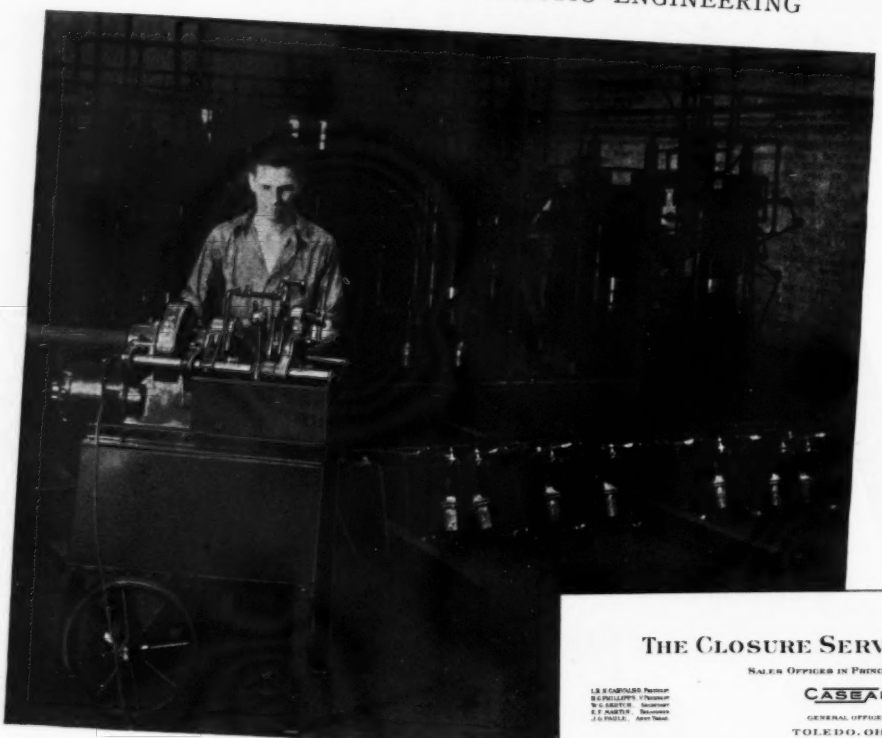

THE CLOSURE SERVICE COMPANY

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TOLEDO, OHIO

MANUFACTURERS OF CLOSURES FOR GLASS CONTAINERS

July 23,1934.

Toledo Pipe Threading Machine Co.,
1445 Summit Street,
Toledo, Ohio.

Attention: Mr. H.A.Mikesell.

Gentlemen:

It will undoubtedly be most gratifying to you to be informed that the #999 Super Model Pipe Threading Machine purchased from you a few months ago has been performing far beyond our expectations. We have already been repaid the initial cost of the machine by the speed and simplicity of operation compared to our former method of thread cutting.

In our installation using 145# steam pressure and 2100# hydraulic pressure, it was essential to have accurate well cut threads, and the very fact that we have never had a leak due to imperfect threading proves conclusively that the machine is all and more than what you claim for it.

Too often in industry we only hear of the sordid things of life, and accordingly we feel that a few lines of praise unsolicited, when an article is really worthwhile, should make all of our tasks just that much easier.

Very truly yours,

THE CLOSURE SERVICE COMPANY

W.G.Skutch
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RECEIVED
JUL 24 1934
The Toledo Pipe Threading Machine Co.

2000 LBS. HYDRAULIC PRESSURE AND NOT A LEAK

Good screwed fittings and double extra heavy pipe with a "TOLEDO" No. 999—1/2" to 2" Power Pipe Machine were used by the experienced engineers who installed eighteen large hydraulic presses for the Closure Service Co., Toledo, Ohio. All hydraulic lines carry 2,000 lb. hydraulic pressure and steam lines 145 lb. steam pressure. The test-out at the completion of the job did not show a single leak on any of the pipe threads cut by this "TOLEDO" machine. A remarkable record you might say, but nothing at all unusual for a "TOLEDO" No. 999—1/2" to 2" Power Pipe Machine.

If you would install life-time leak-proof piping systems, investigate "TOLEDO" equipment for the work. A copy of the complete "TOLEDO" catalogue will be sent you on request.

A copy of the complete "TOLEDO" catalogue will be sent you on request

THE TOLEDO PIPE THREADING MACHINE COMPANY
TOLEDO, OHIO

NEW YORK OFFICE AND DISPLAY: 72 LAFAYETTE STREET

"TOLEDO"

OUR INDUSTRY

October, 1934

Saving for a Loss

Take the average home owner on an average street in any American city. He looks at things in just the same way that all the rest of us do. His attitude toward spending money on his home has been easy to understand. And as we do understand it, we will know better how to secure his interest today in the advantages of prompt remodeling which the national housing program offers.

Just run back a few years. Business men were comparing the expenditures and the expansion of their companies in terms of how much more money or how much faster they were going ahead than their competitors. And at that time our average home owner, Mr. Smith, was comparing his house with the best kept one in the neighborhood. He felt that he must do something in order to make his house rank alongside or ahead of that of Mr. Jones who "always kept his place up."

Then when times changed, the psychology of the business men and the home owner changed at the same time. The industrialist began to vie with his competitor to see who could save the most money. The proof of the good executive was the amount he could save rather than the growth he could show. And Mr. Smith felt the same about it. He forgot the well kept Jones home and paid more attention to another house down the street which showed its need of repair. By comparing his house with this other one, he felt satisfied because his house was in better shape than the poorest one in the neighborhood.

Remodel to Stop Losses

This attitude of mind of the average home owner has been carried beyond the limits of safety. A government official, while admitting his lack of exact figures, told the writer a few days ago that depreciation in American buildings has become one of our major dollar losses. Damage by fire is a known figure and such destruction is spectacular and readily understood. But the loss that goes on day after day in the millions of American homes through the failure to spend a few dollars for essential repairs, easily exceeds, according to this official, the millions lost annually through fire, tornado, and other known destructive agencies.

During the past few years, many individual efforts to help building have been started. The results in most cases were disappointing collectively, although here and there many alert individuals benefited from such programs.

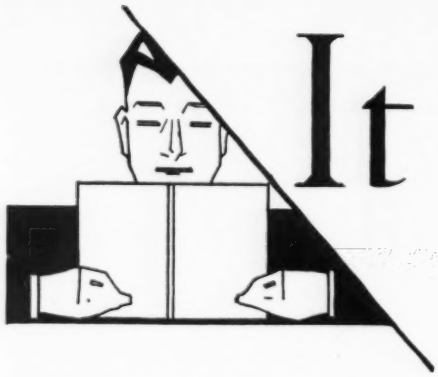
Join the Army

But this present movement has a strength and a prospect for success based upon a factor which was missing in these previous drives. That factor is the success of the national housing program in enlisting literally thousands of agencies from every branch of the construction industry and from many outside fields. We have for the first time an actual army of men concentrating on the one purpose of increasing the business of the building industry.

Find Cash Is Ready

A surprising and certainly encouraging development from the first few weeks of this program —and it is well to recall that the program is really only a few weeks old—is the discovery that many thousands who had not planned to modernize their building this fall, have become interested because of the new enthusiasm and the new sales activity of the building industry, have been making inquiries and have decided to have the work done now.

And a great many of these, some estimates ran as high as 5 out of 6, are paying cash for the work. This is an effective answer to those who discounted the importance of this program through a fear that caution would keep the man with money or with a fixed income from going into debt when he had been proud of his ability during the past few years to keep out of debt. It shows that the tremendous bank deposits really mean what they say, that is, a lot of people really have money and under the driving force of this national housing movement dealers have been able to show the positive advantages of using some of that money now for modernizing buildings which had begun to depreciate daily at an alarming rate.



It happened

New Central Supply Association Organized for Wholesalers

150 Members Make up Group With Price as New President

A new Central Supply Association, with its membership confined to wholesalers, was organized at a meeting in Chicago, Sept. 26-28. The old association had included both wholesalers and manufacturers. The dissolution of the old C.S.A. was voted by its members and promptly upon organizing their new association, the wholesalers passed unanimously a resolution thanking manufacturers for their support of the former association.

All Officers Retained

W. E. Price of the Knapp Supply Co., Muncie, Ind., the last president of the old association, was elected president of the new organization. All other officers were similarly retained, including J. C. McEwen, N. O. Nelson Mfg. Co., St. Louis, first vice president, and H. C. Yelton, Inland Supply Co., Chicago, second vice president. W. E. McCollum was retained as secretary and temporarily is acting as treasurer.

The C.S.A. territory is divided into 15 zones and at the organization meeting, 9 of the zones chose representatives for the executive committee. The 6 others are being named by their respective zones.

The new C.S.A. starts with about 150 wholesaler members. Committees have been named on pipe and on valves and fittings. Each zone is represented on these committees and the 15 members of each committee will select a working committee of three which will be authorized to meet with manufacturers and with similar groups from other associations. Committees on plumbing and on heating products will be named. The association expects to carry forward some of the activities formerly handled by the old National Pipe and Supplies Association.

The association will meet twice annually, in April and in October.

The old Central Supply Association was organized in 1894 succeeding the National Association of Jobbers in Plumbers', Gas and Steamfitters' Supplies, which had started in 1888. Three of the charter members are still living, Theodore Ahrens, then representing the Ahrens & Ott Mfg. Co., and later the Standard Sanitary Mfg. Co., L. D. Lawnin of the N. O. Nelson Mfg. Co. and G. H. Bailey of the Bailey-Farrell Mfg. Co.

Plumbing Prices Cut to Aid Housing

Coincident with the launching of the nation-wide home modernization and improvement campaign of the Federal Housing Administration, the leading manufacturers of plumbing fixtures on Sept. 17 announced a cut in prices amounting to as much as 20 per cent on some items. This information is being broadcast by the Plumbing and Heating Industries Bureau to newspapers all over the country.

Plumbing Fixtures Reduced

All plumbing fixtures, including bathtubs, lavatories, closets, and sinks, were reduced. The new prices are now available to the public through plumbing dealers and contractors throughout the United States.

This is the second time this year that the price of bathroom equipment has been cut in an effort to bring the convenience of modern plumbing within reach of everyone.

Employes of Kohler Company Vote Down Outside Union

The large majority of the employes of the Kohler Co., Kohler, Wis., voted in favor of the Kohler Workers' Association, as their representative for the purposes of collective bargaining, instead of the local union of the American Federation of Labor. The election held by the National Labor Relations Board in which all employes on the Kohler payroll of Sept. 7, 1933, were permitted to vote, showed 1,063 ballots for the Kohler Workers' Association and only 643 as being cast for the local union.

In addition, 577 ballots were challenged by one group or the other, to be held provided it proved necessary to tabulate these disputed ballots. The union challenged 368 votes, 206 being by office employes who were said not to be eligible for union membership.

The strike at the Kohler plant began on July 16, about 11 weeks before the election. It has been marked with several outbursts of violence.

this month!

The minority of employes who participated, aided by outsiders, forced the plant to shut down on the first day and for 10 days kept about 200 men and women prisoners within the factory. A riot on July 27 in which 35 were injured, 20 of whom had never worked for the Kohler Co., brought national guard troops to restore order. On Aug. 28 shipments were resumed and shortly afterwards production was undertaken with a majority of the employes passing the picket lines to resume work.

The election just held was ordered by the National Labor Relations Board and followed a decision of this board in which it "held that the Kohler Co. had not discriminated against union men and in which it refused to grant the request of the union that the Kohler Workers' Association be dissolved."

"The results of the election," said Walter J. Kohler, president of the company, "show clearly that the overwhelming majority of employes prefer to be represented by the Kohler Workers' Association rather than by the American Federation of Labor union. Whatever disposition the board makes of the contested votes, the K. W. A. has won the election, and the fact remains that the employes as a whole, in a secret ballot conducted by the government, have definitely repudiated the strikers."

Duty on Fittings

Secretary of the Treasury Morgenthau has issued a decision making the duty on malleable iron fittings 45 per cent ad valorem. Imports of fittings, particularly from the Orient, had been increasing rapidly being aided by an earlier decision which gave some classes of fittings a lower tariff rating.

Huge F H A Market Is Outlined

By Ward M. Canaday

Director of Public Relations, FHA

ON BEHALF of James A. Moffett, federal housing administrator, I am privileged to describe to you in broad outline a market so vast as to seem fantastic — a market whose existing need for labor and materials is greater than that required to restore the devastated regions of France and Belgium at the conclusion of the war; a market which presents limitless opportunity, and an unexcelled challenge to American industry.

At the same time may I outline to you a program which is designed to put millions of men to work; to speed up the activity of industry in profitable operation; a program which to the extent that it receives your cooperation is designed to reduce government spending and make an approach to the balancing of our national budget.

13,000,000 Buildings Need Repair

Let us analyze the figures: Of the 29,000,000 buildings in this country, 16,000,000 are in need of repair. Of these 16,000,000, three million are so badly depreciated as to be unfit for human habitation. The other 13,000,000 can be saved from rapidly accelerating depreciation if repairs are made now. Delay in making these repairs in millions of instances will mean rapidly increasing damage and much higher cost for later repairs.

If only $100 were to be spent now by each property owner on making necessary repairs and improvements the total figures would reach $1,300,000,000 and this would not supply the most pressing needs.

Please note that I have made no reference to borrowing. When the Federal Housing act was being passed a few months ago it was necessary to lay great stress on the facilities it created for freeing credit to property owners. Real property, which always in this country has been considered the soundest basis of our wealth, had become absolutely frozen because of its lack of liquidity. Banks were afraid to loan on any security which impaired their liquidity, with the result that millions of property owners who did not necessarily need to borrow to keep their property in repair feared to spend even the small amount of necessary money this required.

DOMESTIC ENGINEERING will answer your questions. Any reader wanting information on any part of the great Better Housing Campaign will get a prompt answer by writing the Editor, DOMESTIC ENGINEERING, 1900 Prairie Ave., Chicago.

Accordingly, this act provided that a man needing to borrow to improve his property could make a strictly character loan without endorsement or mortgage, in total amount not exceeding $2,000 to be repaid monthly within a period not to exceed five years, the only government restriction being that the amount borrowed should not involve an annual payment in excess of one-fifth of his annual income. On the total amount of loans thus made by any approved financial in-

stitution, the government insures a total of 20 per cent against loss, this being more than six times the highest loss ratio which ever has developed in time payment financing, even at the depth of the depression. For all practical purposes this is 100 per cent insurance against loss to the financial institution and provides for immediate and complete liquidity in the event the financial institution requires it.

With the assurance that money for needed repairs may be available, without risk to bank liquidity, already evidence is unmistakably clear that a large part of the repairs needed will be paid for with cash.

Most Jobs for Cash

To take a single example—one manufacturer who offered to finance loans for repairs during the past few months found that only $1 out of every $6 spent was borrowed.

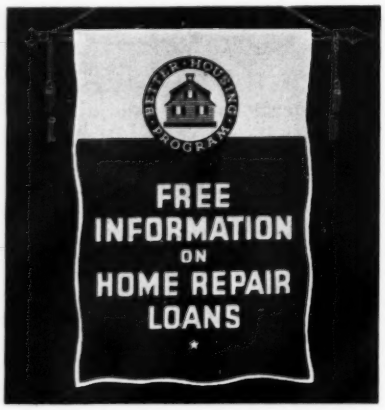
It has become increasingly evident during the past few weeks that by far the most important phase of the development of this vast immediate market for repairs is the emphasis that must be placed on getting property owners to look critcally at their own property and see what repairs and improvements are needed.

In discussing this problem recently in a number of cities, I have found that less than 5 per cent of the people with whom I have talked have looked about their property within the last year with a view to analyzing its needs. Our biggest problem therefore, is to find a way to point out to every property owner his property's immediate need. Once he sees in front of him a list of those things his property requires, he can make a decision to make such repairs and improvements as he can afford to make now, and to wait for those repairs which his financial condition makes it advisable to defer.

With this object in view, we have set up an organization of regional and state directors through whom it was our intention to appoint, in ten leading cities of each state this fall, local chairmen who would organize local committees to make a thorough canvass of every property in the city so that an analysis of immediate requirements could be presented to property owners.

During this same period, 7,500 banks and financial institutions have applied for the privilege of making loans to be insured under the Federal Housing act. These financial institutions represent *thirty-three billions of assets* and touch the vast majority of the population of the country. New enrollments are coming in every day.

To assist in the organization of these Community Campaigns, we have printed a booklet which is the result of an analysis of 84 successful city campaigns run without government aid during the past year.



Flags, posters and many other sales helps already are being used by thousands of dealers

We have also printed a pamphlet for property owners outlining to them specific suggestions for studying the requirements of their own property and showing them exactly how they should proceed, both in the repair of their property and in the arrangement for a loan, if such should be necessary.

As a simple illustration of the nationwide interest in this plan to save property, we have already distributed more than ten million copies of this pamphlet to the public.

Huge Farm Market

May I illustrate the size of this market in another way. A survey of farm properties indicates that there is an immediate potential need for repairs and improvements on farms totaling more than SIX BILLION DOLLARS.

Again, another survey shows:

That 29 per cent of the city dwellings are without either bathtub or shower;

That 72 per cent have no central heating plants;

That 38 per cent have no facilities for hot water;

Please remember that all of these figures deal with existing buildings with an immediate need.

Now, let us look for a moment at the vast long-range market which lies just beyond. In England, where the depression began almost immediately after the war and continued for more than twelve years, they are building this year 300,000 houses. The population of England is 40,000,000. In this country there will be built this year less than 50,000 houses, and our population is 120,000,000. Yet England's national debt is so great that ours would have to be 90 billion dollars to equal the per capita national obligation which rests on every English citizen.

England's housing program has been under way approximately three years, and I understand there is a project planned for next year to build a million houses, to be sold to Englsh workmen with payments on an amortized basis to be made over a period of twenty years.

Building Five Years Behind

Our most conservative estimates of present shortage in this country point to an immediate need of 1,750,000 houses. If we were able tomorrow to start building at the rate of our top production during the ten year period previous to the depression it would take five years to fill this vacuum, and THEN at the rate of our normal requirement we would still be five years BEHIND. Add to this the replacement of obsolete and unuseable property from sound city planning; from decentralization of population, and from the normal development of new processes in business, and it is easy to envisage a *new construction* program of far reaching proportions which economists who have carefully studied the problem believe can be carried on through an era of great prosperity without interruption for a period of from ten to twenty years.

Win a Prize!

How—

Tie in with the FHA program for promoting remodeling. Study the DOMESTIC ENGINEERING contest announced in the following pages. Write the Editor about your sales

Why—

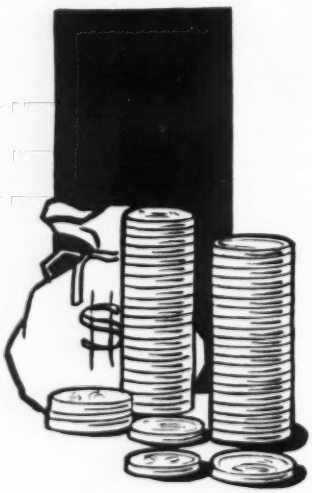
13,000,000 *buildings throughout country need repairs and remodeling. Estimated that* $1,000,000 *a day will soon be loaned. Ideas of successful FHA dealers are given here*

When—

Early announcement of DOMESTIC ENGINEERING campaign has brought in many letters endorsing plan and urging dealers to act now

WIN A PRIZE

Domestic Engineering Offers 118 Prizes



. . . Ready

The great National Housing Campaign has started. Reinforced with the greatest group of allies in history, plumbing and heating contractors are finding and will find the task of selling remodelling and modernization backed up and supported by thousands of others.

Just look over the list of allies.

There's the federal government carrying out the provisions of the new National Housing Act.

There's community groups being organized in every city and town, service clubs, chambers of commerce, local newspapers, financial institutions, all spurred by the realization that better building means better business.

There's hundreds of manufacturing companies in every division of the great building industry, announcing special programs which thousands of salesmen are spreading throughout the whole country.

Everywhere you turn, you will find new hope, new energy and new ideas bursting into action as the possibilities of this positive effort to help building are better appreciated.

And to make sure that the work of hundreds of manufacturers in our industry, of thousands of wholesalers and their salesmen and of many more thousands of dealers, are focused and concentrated into a prompt campaign which will increase sales and profits, DOMESTIC ENGINEERING has decided to offer more than 100 prizes to its contractor-dealer readers.

. . . More Business

This federal housing program looks better the closer you get to it. It is a direct attack on the worst foe of general business—the slowness of the construction industry. It is a business producing program worked up by business men, accepted by President Roosevelt and by Congress in practically the terms drafted by these trained business leaders and placed in the hands of a successful business man for administration.

What is there to shoot at?

Well, more orders is the quickest and simplest answer. Just so we don't forget, look at the picture of what is ahead as people start buying. Five years of stagnation in home construction in a nation of 120,000,000 people means a piled up demand of millions of dollars for plumbing and heating.

Have you followed the records published in the columns of DOMESTIC ENGINEERING on what federal surveys have shown about the condition of plumbing and heating in American homes? Cities with more than half of the homes unequipped with running water! Farmers putting better

---

• • • *WHAT*

Send us a prompt report of a sale you made, a successful sales idea you used, a photograph of your show window, a copy of your advertising, a copy of your sales letter or a good sales suggestion.

This will put you in line for one of the 18 Monthly Prizes, for one of the 90 Book Prizes and for the GRAND PRIZE of $100.

WHAT YOU MAY WIN

A $7.50 Domestic Engineering Plumbing and Heating Catalog and $5.00 in cash.

A $7.50 Domestic Engineering Plumbing and Heating Catalog.

to Dealers in National Housing Campaign

plumbing and better heating at the top of the things they need and will buy! 800,000 leaks found in one city alone, an average of more than two plumbing repairs needed in each home!

Today finds our industry facing the greatest need for its products, the greatest unsatisfied demand for its goods, of any time in history. In the past five years, an overwhelming demand has piled up back of the barrier of fear, of delay and of a national unwillingness or inability to spend. Remove that barrier—and that's just a selling job—or even start a fair sized stream of orders flowing over the top, and the barrier will be swept away in an amazing flood of orders.

And the first loan made in the national housing campaign was for plumbing and heating modernization.

. . . Our Offer

DOMESTIC ENGINEERING is ready to help every reader obtain the full benefit of this great program to help the building industry.

DOMESTIC ENGINEERING is offering 118 prizes to its readers who show the most enterprise and ingenuity in selling plumbing or heating products as their share of this national housing campaign.

The rules are simple and the field is wide open. Every contractor-dealer reader is eligible to win a prize, regardless of whether he operates in a small town or in a big city.

TO DO

A choice of one of six Books, all among our best sellers.

AND

The Grand Prize of $100.

WHAT WE OFFER

18 Catalogs	$135.00
9 Cash Prizes	45.00
90 Books	90.00
Grand Prize	100.00
TOTAL PRIZES	$370.00

The purpose of our prize offer is to help the dealers and smart salesmanship is just as likely to be called into play on a comparatively small order in a small town as on a bigger job in a bigger city.

This program means volume, volume of orders, volume of sales effort. Our best contribution is to make quickly available to our thousands of contractor-dealer readers at the first opportunity the best ideas and methods of other dealers. No other agency has the facilities possessed by DOMESTIC ENGINEERING to carry practical sales news and proved sales plans to thousands of the best contractor-dealers all over the country.

So our prize offers are intended to stimulate activity among dealers and then to make those prize winning sales ideas available to all our readers.

. . . Your Opportunity

Here's the DOMESTIC ENGINEERING Prize Winning Program.

Every contractor-dealer can enter.

All he must do is to write us about a sale he has made, a sale in which he was able to get the customer to use plumbing and heating products to remodel his home or building.

This sale may have come from ingenious handling of a difficult selling situation.

It may have come from newspaper advertising by which this dealer established himself in the

front ranks of those backing this great federal housing program in his community.

The sale may have come from his clever use of his show room to attract attention which led to the sale.

The sale may have come from a sales letter which pulled orders.

It may have come from the dealer's initiative in directing his salesmen.

Or, the sale may have come from his enterprise in showing how a plumbing or heating product could be used for a purpose other than the one for which it is commonly sold.

The enterprise and ingenuity of the dealer is the determining factor in deciding the prize winners. His method preferably must have brought him an actual order or orders, although this is not necessary, and must be one which other dealers can read about in DOMESTIC ENGINEERING and apply in their own localities.

Those entering the Prize Campaign can simply write to the Editor of DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago, telling in their own way what they did. Skill in writing us is not important, the important thing is skill in making the sale. Our job as editors will be to present your idea to our other readers.

. . . Start Now

Start now. Start tying in with your local campaigns. Start selling. Start writing us about your sales. The first prizes will be awarded to those whose letters reach us by October 15, so an early start and a quick letter is essential.

Write the Editor of your best sales effort or sales experience. Put yourself in line for one of the monthly prizes. And keep in mind your opportunity for the Grand Prize.

We have full publication privileges to the report and material you send us but we want all you send just to help other readers to learn and use promptly the best and most practical sales ideas.

So add to the profits of your own selling efforts, the prizes which DOMESTIC ENGINEERING will give.

It's a bargain. Let's go.

. . . WATCH THE RULES

One hundred and eighteen Prizes are offered for sales ideas and sales information sent to The Editor of DOMESTIC ENGINEERING, 1900 Prairie Avenue, Chicago, during October, November, December and up to January 15, 1935. This information preferably should be based on your sales work, which produced a sale and in the opinion of the judges will help other dealers.

The Grand Prize of $100 will be awarded in February, material to reach us by January 15, 1935.

Each month, three contractor-dealers chosen by the judges as offering the most practical and proved sales help to other dealers, will be given a Domestic Engineering Plumbing and Heating Catalog and also a check for $5 each. To the next three selected by the judges each month, we will give each a copy of the Domestic Engineering Plumbing and Heating Catalog.

This means nine prizes each month during November, December and January.

Your letters, pictures, advertisements or reports must reach us by October 15 for the November awards; by November 15 for the December awards, by December 15 for the January awards and by January 15 for the grand awards in February.

All winners of monthly prizes are automatically entered for the Grand Prize. In February, the outstanding sales help of the campaign as chosen by the judges will win for the contractor-dealer who sends it to the Editor, the Grand Prize of $100. And the 90 next in line as chosen by the judges will have their choice of any one of the six following books:

"Air Conditioning Simplified,"

"101 Plumbing and Heating Tables,"

"Alt's House Heating Plans," by Harold L. Alt,

"Oil Burner Heating,"

"Joint Wiping and Lead Work," by William Hutton,

"Table of Estimated Radiation," by Harry B. Perrigo.

Remember, 9 Prizes in November, 6 of the Big Catalogs and 3 of $5.

Nine similar Prizes in December and 9 more in January.

Then 91 Prizes in February, the Grand Prize of $100 and 90 practical and helpful books.

In case of a tie for any prize offered, a duplicate prize will be given.

The winner of a Monthly Prize will be eligible for the Grand Prize but is limited to one Monthly Prize.

The judges are being chosen and will be selected for their knowledge of the plumbing and heating business and of the great national housing campaign.

Judges Who Will Select Prize Winners

John J. Calnan, president of the National Association of Master Plumbers, is one. Mr. Calnan has made a success of his own plumbing business and that success, together with his keen insight into the industry, has carried him to the Presidency of the N. A. M. P.

Norman J. Radder, secretary of the Plumbing and Heating Industries Bureau, is a judge. Mr. Radder, in addition to a close association with all branches of the plumbing and heating industry in recent years, has been successful in gaining a great deal of favorable publicity for the industry in all types of mediums.

The third judge will be selected from a high ranking Federal Housing Administration official in order to secure the benefit of the official experience and viewpoint.

FHA Questions Show New Business Possibilities

Win a Prize Campaign Gives Opportunity for Contractor-Dealers to Profit Two Ways

ONE of the first questions which comes to mind when the National Housing Act is mentioned, no doubt, is that of what influence can it have in increasing business and particularly, the plumbing and heating business. There are various ways to answer this and in practically each answer can be seen encouragement if not actual cause for enthusiasm. In the first place, the whole idea of the FHA centers around the repairs and remodeling of the homes in this country. In the second place, the plan is not restricted to any small group. On the contrary, it involves the entire small building construction industry. Still another point to keep in mind is that the entire program is being organized along the Liberty Loan drives which were so successful during the war. In other words, local civic groups, women's clubs and similar organizations are being enlisted to sell the idea to home owners that they should remodel.

The most encouraging part of all of it is that the original expectations for its acceptance have been exceeded by far. The FHA spirit is being entered into most enthusiastically by those civic leaders who are in positions to promote it, by those home owners who need repair and remodeling work done and by members of the construction and allied industries who, obviously, stand in line to profit by the activity.

The FHA is going forward. Whether or not plumbing and heating contractors get their share of the business being created will be dependent upon how they go after it in their respective communities. Remember, money is being spent and more money will be spent as the program gets under way. It is not a case of competition between members of the plumbing and heating industry. Instead, our industry is competing with the paint, the lumber, the floor covering and other divisions of the total construction industry.

In order to encourage our readers to go out and get their share of this business, DOMESTIC ENGINEERING'S Prize Campaign has been launched. This will work two ways for the benefit of plumbing and heating contractor-dealers. Those who work with FHA and enter in this contest will stand to profit by their FHA work and at the same time they will have an opportunity to work for the prizes which are to be given in this contest.

General questions which come to mind in connection with FHA and which home owners are likely to ask are listed in the following together with their answers:

Question: After the owner has qualified for a loan and after the loan has been paid to him, what provisions are there for determining if he has carried on the work in accordance with the original ideas expressed when the loan was made?

Answer: This must be taken care of by the lending institution just as in the past.

Question: Are there any provisions in the Act for making collections after the loan has been made and paid out?

Answer: No. The agency which makes the loan bears the entire burden of collecting the money.

Question: What is to be the procedure for persons living in small towns where there is no bank or loaning agency existing? How do they get in on these benefits?

Answer: It will be necessary for the individuals to go to the nearest town having a bank working under the Federal Housing Act plan, or they can start a new bank or loaning agency in their town to operate under this Act.

Question: Does the borrower get any money before the work is done?

Answer: This matter will be entirely in the hands of the bank or agency making the loan.

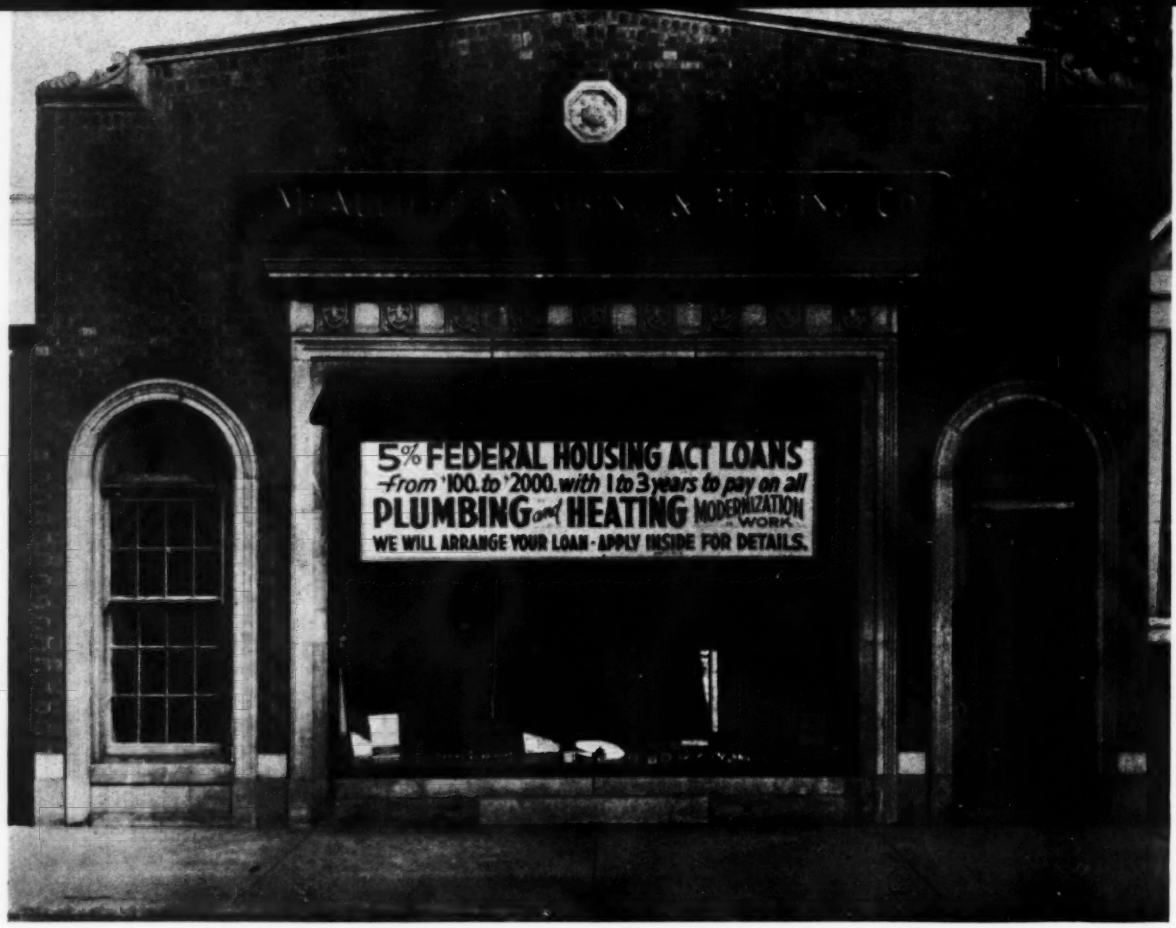
Question: Is there any service set up to assist the owner in getting bids on proposed work?

Answer: No. Cooperating agencies no doubt will work this out locally.

Question: What is the rate which is to be charged for these loans?

Answer: A rate of 5 per cent interest will be charged on the loan for a three-year period. However, the principal amount of the loan will constantly be decreasing as a result of the regular payments so that over the three-year period, there will be only half the amount of the loan as the average indebtedness. Figuring the amount of interest paid actually will make the interest rate 9.72 per cent.

"Cut in Fixture Prices Will Help FHA Drive"—Calnan


5% FEDERAL HOUSING ACT LOANS
From $100. to $2000. with 1 to 3 years to pay on all
PLUMBING and HEATING MODERNIZATION WORK
WE WILL ARRANGE YOUR LOAN - APPLY INSIDE FOR DETAILS.

What Contractor-Dealers Are

FHA Bureau Brings 3 Jobs in 2 Weeks

H. A. McAuliffe of Indiana Harbor tells about his FHA experience in the following:

"Knowing that the Better Housing Program sponsored by the United States government under the National Housing Act is the opportunity that we have been waiting for to increase our sales," said Mr. McAuliffe, "we have made careful plans to help make it easy for the property owners to finance their improvements.

Aggressive sales efforts are being made to connect the McAuliffe Plumbing & Heating Co. with the better housing program by establishing our firm as a bureau of information for the home owners.

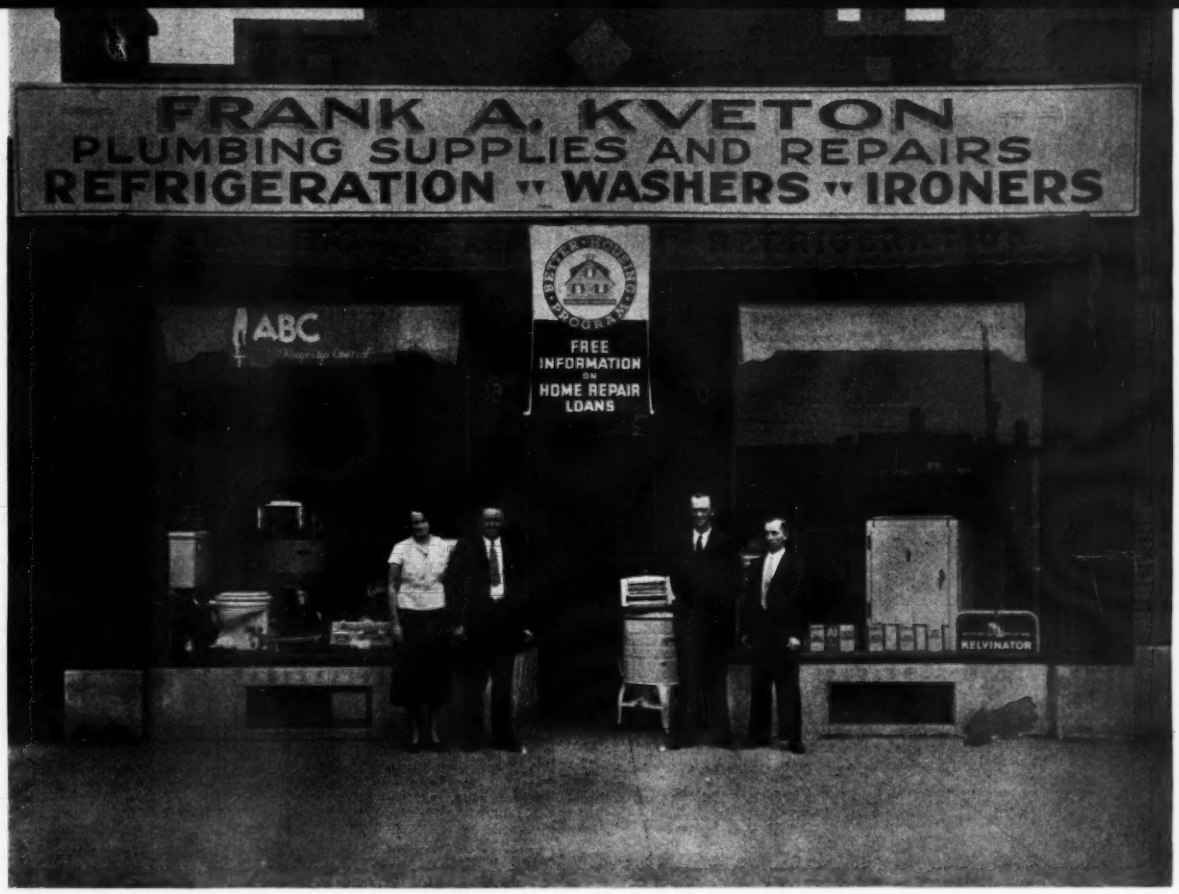
"Loans are arranged for the prospect either through finance companies or local banks. Direct by mail literature and broadsides are being distributed to every property owner in the community. By making it easy for the prospect to finance his improvement, it has affected us directly as to sales.

"We have had numerous requests for information and have been able to close three jobs amounting to $1,200.00 in the two weeks since we established our bureau. We have had more prospects for plumbing and heating work and have figured more jobs in number than we have in the past three years.

"In connection with this sales program, we have had our firm approved as plumbing and heating contractors for the repair and remodeling of plumbing and heating systems by the Home Owners Loan Corporation. We have figured eight jobs, installing five complete bath rooms, changing a boiler and increasing the radiation, installing sinks in a 2-flat building and running a new sewer. We follow these leads by personal visits until the HOLC or Finance Company approves or rejects the loan and in many cases we have not had any competition."

Mr. McAuliffe feels that the industry is being challenged by the di-

$1,000,000 Daily Said to Be Present Total of FHA Loans



Doing to Get F H A Business

rect-to-you and mail order houses of the country as these are backing up the government program to the limit. "The time for the plumber to show his ability," he said, "as a merchandiser is here. There is plenty of business to be had and through aggressive sales effort it will be placed in our shops where it rightfully belongs.

"We are receiving more cooperation from our sources of supply than we ever received before. It depends on the industry as a whole as to what amount of business our industry will receive through the government program. No special amount has been set aside for plumbing and heating work and the amount that our industry receives depends largely on the effort the contracting dealers put behind this program.

Equipment eligible for FHA loans are shown in the following official statement from Washington:

Certain housing equipment is considered "built-in" under the regulations of the Federal Housing Administration. The lists which follow are suggestions only, selected to indicate the application of a basic policy covering items which are eligible for insurable loans. "Built-ins" include:

Plumbing equipment, including fixtures, if permanently installed.
Individual lighting plants and equipment.
Incinerators and other garbage-disposal systems, if built-in.
Nondetachable heating systems and equipment (coal, wood, oil, gas, or electricity).
Domestic water-heating equipment.
Oil burners, including oil-storage equipment and thermostatic controls.
Heating control devices.
Automatic stoking and ash-removal equipment, if permanently installed.
Radiation, if part of heating system, including valves and accessories, including unit heaters.
Individual gas-making machines and equipment.
Water works system.
Wells and cisterns, including pumps and wind-mills.
Individual sewerage disposal systems, including septic tanks.
Water supply and sewerage connections with public mains.
Air-conditioning equipment.
Humidifying equipment, if built-in.
Built-in ventilating equipment, including fans.
Forced heat circulating equipment.
Sprinkler systems.

More Inquiries, More Orders Is What Dealers Now Find

Dealers Use Ads to Get FHA Orders

UNCLE SAM WILL HELP
RECONDITION
(Remodel—Repair—Renovize)
YOUR HOME
Through the
NATIONAL HOUSING ACT
or
The Reconditioning Division
of
Home Owners Loan Corporation
These Local Firms Stand Ready to Help You.
Improve Your Home, Office, Factory
Modernized Plumbing
Means Good Health, Good Cheer and the Proper Home Atmosphere
It's Worth While.
CONSULT
LEON DERN
Plumbing & Heating
391 Avenue C
Bayonne 3-0791
Licensed in Bayonne and Jersey City
AUTOMATIC COAL BURNER
We Finance Building Remodeling up to $2000
Only your personal note required
Cochran-Sargent Co.
St. Paul-Sioux Falls-Fargo
A New HEATING SYSTEM
For as Low as 4.00 WEEKLY
No Down Payment
GEHRI
Heating & Plumbing Co.
1616 Tacoma Ave.
Main 1650
Now is the Time to
Modernize Your Bath and Kitchen Plumbing
NEW fixtures in place of old, leaky ones . . . a luxurious, modern tub and shower more than pay for themselves in satisfaction and economy.
We Specialize in
REPAIRS AND ALTERATIONS
Quality Plumbing
Come in, write or phone. Let us assist you with your FHA Loan, and furnish estimates.
P. V. EDMONDS, Inc.
Cook with Pyrofax Gas Regardless
No Red Tape
We will make all arrangements for a loan to remodel your home, store or garage.
We include in our contract all carpenter, cement, brick, plaster, painting, tile, electrical and plumbing work.
Call us for information about FEDERAL HOUSING ACT.
Frank A. Kveton
GENERAL CONTRACTOR — PLUMBING CONTRACTOR
6040 W. CERMAK ROAD Phone CICERO 2145
Residence, Phone CICERO 640
Get That New Bathroom!
. . . Fixtures At Lowest Prices Ever!
No Down Payment! Expert Workmanship!
3 Years To Pay! Free Survey!
Everyone is trying to help you do that needed remodeling. Our manufacturers have reduced fixture prices to new low levels . . . Uncle Sam has solved the financing problem . . . the Gallison Plan and your plumber do the rest.
WHAT IS THE GALLISON PLAN?
THE GALLISON PLAN makes good plumbing easy to get. Our trained fixture men make a survey of your home, prepare plans and specifications on all work to be done. Your own plumber quotes you a contract price for complete installation. We assist financing through a simple deferred payment plan. All this service is free and with no obligation to buy.
To get this service phone us at HAN. 8190 or visit our showroom
H. Gallison Co.
HEATING and PLUMBING
Improvements May Be Paid For By A FHA Loan
We urge every home owner to take advantage of this opportunity to modernize his heating and plumbing systems while prices are at their present low levels.
Are You Proud of Your Kitchen?
Let Us Install a Modern Kitchen Sink—
or a Water Heater on Your Furnace
Get ready for winter now. Cold weather will soon be here.
LET US GIVE YOU AN ESTIMATE
Moseley Bros.
CONTRACTORS
How's Your Bathroom?
Do Your Friends Secretly Criticize It?
If it isn't modern the N.H.A. enables you to make it modern. But do it now.
Call Us Today for a Free Estimate
E. F. KENNEDY
PLUMBING—HEATING
2616 Eighth Street
Plumbing and Heating
NONNENACHER
PLUMBING & HEATING
Stanley Plumbing Supply Co.
YOUR SIGNATURE
Is All That Is Necessary To Get
MODERN PLUMBING
RADIATOR HEATING
Installed in your home immediately through our financial plan in cooperation with the U. S. Government.
No Down Payment
Lowest Fees
No Delay
No Red Tape
No Mortgage
to 3 Years to Pay
DAVID E. COLE
Sign of the Iron Dog
MAIN ST. PHONE 111
Catskill, N. Y.
MODERNIZE YOUR PLUMBING
MONEY TO LEND
FOR Heating & Plumbing Modernization
Nothing down...
and up to
3 Years to Pay
YOU CAN AFFORD GOOD HEATING ON SUCH TERMS!

These several selected ads have been taken from all sections of the country. They are being used now. Ideas and slogans for similar ads appear on the next page

Wholesaler Reports More Orders

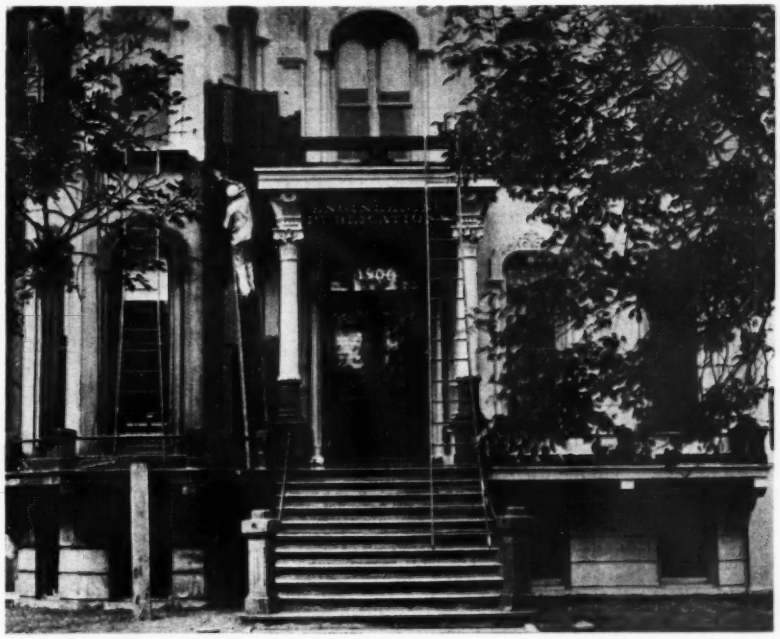
A large eastern wholesaler reports—

"We believe the federal housing program will help business conditions, as far as we are concerned, to a much greater extent than all of the other plans combined that have been brought out prior to this time. Already we have noticed a very considerable increase in the amount of orders we receive from our customers.

"We are actively in back of this entire program. We have arrangements with several manufacturers, finance companies and banks to help our customers with their problems and we are prepared to be of assistance to them whenever it is necessary to do so. Although until very recently we were inclined to believe that the coming winter would be a very poor one as far as the plumbing and heating business was concerned, we now are sure that the coming winter will show a very considerable increase over the business received by our plumbing and heating contractor customers during the past several winters. What is of course most important of all is that our customers are assured of receiving the payments just as soon as the jobs are completed.

"We appreciate your help in covering this matter for the trade and we have just issued a bulletin calling the attention of our entire organization to the fact that each issue of your publication would show some article in reference to this program."

(Signed) Saltser & Weinsier, Inc.,
Brooklyn, N. Y.,
Ed. Winzinger,
Assistant Secretary.



The first recommendation of the FHA to get the national housing drive started is for each manufacturer, wholesaler and dealer to check his own plant or store and fix it up. Taking its own advice seriously, Domestic Engineering is repainting its building and making timely roof and structural repairs. It's worth knowing, that a few days later the two adjoining buildings had men at work renovating their exteriors.

Here Are Headlines for Your Advertisements

Taken from Ads Dealers are Running

Uncle Sam is ready to help you modernize your old plumbing and heating equipment.

No money down! As long as three years to pay.

You have always wanted a steam or hot water heating system. Under the Government home remodeling act you may have one installed now. Small monthly payments. No down payments. No red tape.

Now you can modernize.

Why worry about winter? Take up to three years to pay. No down payment. Lowest interest. No mortgage. No co-maker.

A new heating system for as low as $4.00 weekly.

Modernize your property under the benefits of the National Housing Act.

Money to lend for modernizing your home.

Save money and be comfortable this winter. Uncle Sam will help you.

For your home modernization—see us.

Save money on home repair.

A model financing plan gives new homes for old.

Take advantage of the Federal Housing plan and modernize your home now.

Our President says "Repair—rebuild—and modernize your home."

We will make it hot for you—let us check and correct your heating plant.

Plan your home improvements with our help.

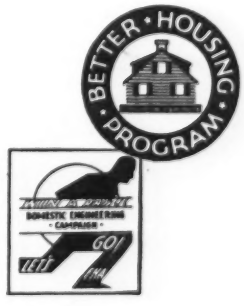
Now is your chance to repair and modernize.

Is the health and comfort of your family worth 37c a day?

Buy modern radiator heat for 37c a day.

Modernize your heating system. Reduce fuel costs.

$3 out of every $10 on FHA goes for plumbing-heating



Plumbing and Heating on 3 out of 10 FHA Loans

Three out of ten.

A .300 average—good enough for any big leaguer.

Heating and plumbing are going in on 3 out of 10 jobs now being reported daily from the National Housing campaign.

Heating ranked first in borrowers' choice in 718 modernization and repair loans just analyzed by the FHA. These loans took in 1,824 jobs of which 265 or 14.53 per cent were heating.

Plumbing ranked third with 252 jobs or 13.82 per cent.

Our industry's products were thus used on 517 out of the 1824 jobs, or on 28.35 per cent.

The following shows the complete breakdown of these 718 repair loans, whose total dollar value was $415,719 and whose average was a sizeable loan of $579.

Of the loans made, the following is the number of jobs and the purposes:

Purpose	No. of Jobs	Percentage
Heating	265	14.53
Inside Painting & Redecorating	264	14.47
Plumbing	252	13.82
Exterior Repairs	177	9.70
Roofing	169	9.27
Outside Painting	168	9.21
Remodeling—General	155	8.50
Interior Repairs	102	5.59
Cementing	72	3.95
Lighting	64	3.51
Remodeling—Bathroom	56	3.07
Additional Rooms	44	2.41
Remodeling—Kitchen	36	1.97
	1824	100.00

Following is a breakdown of those who negotiated these 718 loans:

Occupation	No. of loans	Percentage
Employees (Clerical)	135	18.80
Public Employees	131	18.25
Mechanics (Skilled)	96	13.37
Business Men (Sole Owners)	92	12.81
Salesmen	48	6.69
Corporation Officers	43	5.99
Laborers (Unskilled)	29	4.04
Renting Rooms or Apartments	28	3.90
Business Men (Partners)	28	3.90
Department Heads	28	3.90
Professional Men	26	3.62
Foremen	13	1.81
Storekeepers	9	1.25
Drivers & Truckmen	9	1.25
Barbers	3	.42
	718	100.00

The total number of jobs exceeds the number of loans because a given loan may have been made for two or more purposes.

Ninety-five per cent of the loans were made for home improvements and five per cent for improvements of business property.

Of these 718 loans 564, or 78.55 per cent, were new contracts and 154, or 21.45 per cent, were previous borrowers.

OUR RECORDS SHOW THESE WHOLESALERS ARE BACKING FHA PROGRAM

The following wholesalers are ready with full information on the FHA program; can help dealers in arranging for loans; can help dealers entering the DOMESTIC ENGINEERING Prize Campaign

Aberdeen, S. D.
Crane Co.
324 Railroad Ave. S. E.

Akron, Ohio.
Standard Sanitary Mfg. Co.
Crosler and High Sts.

Albany, N. Y.
Crane Co.
North Broadway.
Interstate Plumbing Supply Co., Inc.
731-33 Broadway.

Albuquerque, N. M.
Crane-O'Fallon Co.
612 N. First St.

Allentown, Pa.
Hajoca Corp.
1313-1319 Linden St.

Altoona, Pa.
Standard Sanitary Mfg. Co.
1615 Ninth Ave.

Asheville, N. C.
Crane Co.
97 Roberts St.
Hajoca Corp.
Garfield and Decatur Sts.

Atlanta, Ga.
Crane Co.
Washington St. Viaduct.
Standard Sanitary Mfg. Co.
101 Marietta St. Building.

Atlantic City, N. J.
Crane Co.
2401 Boardwalk.

Aurora, Ill.
Crane Co.
544 S. Lake St.

Baltimore, Md.
Crane Co.
626 W. Pratt St.
Hajoca Corp.
North Ave. and Oak St.
Schumacher & Seiler, Inc.
900 E. Monument St.
Standard Sanitary Mfg. Co.
334 North Charles St.

Beaumont, Texas.
Crane Co.
820 Fannin St.
Standard Sanitary Mfg. Co.
Fannin and Orange Sts.

Bethlehem, Pa.
Hajoca Corp.
1736-1752 E. 4th St.

Billings, Mont.
Crane Co.
Cor. 30th St. and 1st Ave. So.
Marshall-Wells Co.

Binghamton, N. Y.
W. A. Case & Son Mfg. Co.
1 Lewis St.
Crane Co.
21 Washington St.
Prescott Supply Co.
249-253 Water St.

Birmingham, Ala.
Crane Co.
2 S. Twentieth St.
Standard Sanitary Mfg. Co.
503 Twenty-second St., So.

Boston, Mass.
Boston Pipe & Fittings Co., Inc.
275 Congress St.
Crane Co.
48 W. First St., South Boston.
Standard Sanitary Mfg. Co.
186-200 Devonshire St.

Bridgeport, Conn.
Crane Co.
302 John St.

Bridgeton, N. J.
Hajoca Corp.
Penn and Bank Sts.

Brockton, Mass.
Corcoran Supply Co. of Brockton, Inc.
300 Montello St.

Brooklyn, N. Y.
Philip Granoff
793 Sutter Ave.
Saltser & Weinsier, Inc.
173-199 Cook St.

Buffalo, N. Y.
Crane Co.
294 Delaware Ave.

Camden, N. J.
Crane Co.
134 Federal St.
Hajoca Corp.
1687 Haddon Ave.
J. D. Johnson Co., Inc.
Newton and Division Sts.

Canton, Ohio.
Crane Co.
210-218 Piedmont Ave. S. E.
Standard Sanitary Mfg. Co.
1120 High Avenue, S. W.

Casper, Wyo.
Crane-O'Fallon Co.
802 East "C" St.

Cleveland, Ohio.
Deegan-Siefert Co.
5224 Blanche Ave.

Champaign, Ill.
Inland Supply Co.
718 S. Neil St.

Charleston, W. Va.
Crane Co.
502 Broad St.

One Wholesaler has made 107 loans for a total of $33,000

Charlotte, N. C.
Crane Co.
1307 W. Morehead St.
Hajoca Corp.
1447 S. Tryon St.

Chattanooga, Tenn.
Crane Co.
1317 Chestnut St.
James Supply Co.
1104 Market St.

Chester, Pa.
Hajoca Corp.
19-25 W. 2nd St.

Chicago, Ill.
Crane Co.
156 N. Jefferson St.
Miller Supply Co.
2100 S. Sawyer Ave.
Standard Sanitary Mfg. Co.
816 South Michigan Ave.

Cincinnati, Ohio.
Crane Co.
824 Broadway.
Mutual Mfg. & Supply Co.
2901-2933 Spring Grove Ave.
Standard Sanitary Mfg. Co.
Southeast Corner Seventh and Walnut Sts.

Cleveland, Ohio.
Crane Co.
6215 Carnegie Ave.
Standard Sanitary Mfg. Co.
4415 Euclid Ave.
Universal Valve & Fittings Co.
3701 King Av.

Columbus, Ga.
Hajoca Corp.
112 12th St.

Columbus, Ohio.
Crane Co.
67 N. Front St.
Standard Sanitary Mfg. Co.
503-519 South Front St.

Corpus Christi, Texas.
Crane Co.
1212 Gavilan St.

Dallas, Texas.
Crane Co.
814 Young St.
Standard Sanitary Mfg. Co.
1200 Jackson St.

Danville, Va.
Hajoca Corp.
318-320 Craghead St.

Davenport, Iowa.
Crane Co.
217 E. 2nd St.

Denver, Colo.
Crane-O'Fallon Co.
1631 Fifteenth St.
Standard Sanitary Mfg. Co.
1716 Blake St.

Detroit, Mich.
Crane Co.
150 Randolph St.
Standard Sanitary Mfg Co.
14430 Dexter Blvd.

Duluth, Minn.
Crane Co.
102 Lake Ave., S.

Durham, N. C.
Noland Co., Inc.
Foster & Market Sts.

East Chicago, Ind.
Crane Co.
1004 Chicago Ave.

East St. Louis, Ill.
Standard Sanitary Mfg. Co.
21 North Seventh St.

El Paso, Tex.
Crane-O'Fallon Co.
1609 Texas St.
Standard Sanitary Mfg. Co.
160 North Piedras St.

Erie, Pa.
Standard Sanitary Mfg. Co.
128 W. 12th St.

Evanston, Ill.
Crane Co.
1224 Emerson St.

Evansville, Ind.
Crane Co.
118 S. E. Eighth St.
Standard Sanitary Mfg. Co.
Illinois and Governor Sts.

Fargo, N. D.
Crane Co.
636 Northern Pacific Ave.

Flint, Mich.
Crane Co.
155 Lewis St.

Flushing, L. I., N. Y.
Saltser & Weinsier, Inc.
153 Barclay Ave.

Ft. Smith, Ark.
Crane Co.
521 S. Ninth St.

Fort Wayne, Ind.
Standard Sanitary Mfg. Co.
126-128 West Columbia St.

Fort Worth, Texas
Standard Sanitary Mfg. Co.
1601-07 North Ballinger St.

Galesburg, Ill.
May Co.,
413 S. Prairie St.

Grand Island, Nebr.
Crane Co.
115 E. Front St.

Grand Junction, Colo.
Crane-O'Fallon Co.
601 Pitkin Ave.

Grand Rapids, Mich.
Crane Co.
56 Grandville Ave., S. W.
Standard Sanitary Mfg. Co.
90 Market Ave., S. W.

Great Falls, Mont.
Crane Co.
Great Northern Ry. Yards

Greenville, S. C.
Crane Co.
218 Pendleton St.

Harlingen, Tex.
Crane Co.
201 West "C" St.

Hartford, Conn.
Crane Co.
710 Windsor St.

Hazleton, Pa.
Hajoca Corp.
42-50 S. Church St.

Hempstead, N. Y.
Crane Co.
209 Main St.

Hollywood, Calif.
Crane Co.
950 N. Highland Ave.

Houston, Texas
Crane Co.
2205 McKinney Ave.
Standard Sanitary Mfg. Co.
2300 McKinney Ave.

Huntington, W. Va.
Standard Sanitary Mfg. Co.
Second Ave. & Tenth St.

Indianapolis, Ind.
Crane Co.
333 W. Market St.

Jackson, Mich.
Crane Co.
409 Hupp Ave.

Jackson, Miss.
Crane Co.
176 N. Gallatin St.

Jacksonville, Fla.
Crane Co.
1007 W. Bay St.
Hajoca Corp.
122 E. Bay St.

Jamaica, L. I., N. Y.
Saltser & Weinsier, Inc.
103 164th St.

Jenkintown, Pa.
Raymond C. Green & Co.
York Rd. & Cherry St.

Jersey City, N. J.
Sanitary Plumbing Supply Co.
239-41 Newark Ave.

Joliet, Ill.
Standard Sanitary Mfg. Co.
Railroad & McDonough Sts.

Joplin, Mo.
Joplin Supply Co.
Joplin St. & 3rd Ave.

Kansas City, Mo.
Crane Co.
1328 West 12th St.
Standard Sanitary Mfg. Co.
1021 Grand Ave.

Knoxville, Tenn.
Crane Co.
523 W. Jackson Ave.
Standard Sanitary Mfg. Co.
218 East Depot St.

La Crosse, Wisc.
W. A. Roosevelt Co.
220 N. Front St.

Lansdale, Pa.
Hajoca Corp.
Cannon Ave. & 5th St.

Lansdowne, Pa.
Hajoca Corp.
Union & Baltimore Aves.

Las Vegas, Nev.
Standard Sanitary Mfg. Co.
632 South Main St.

Lebanon, Pa.
Lebanon Plumbing Supply Co.
5th St. & Reading Ry.

Lewistown, Pa.
Hajoca Corp.
36 Montgomery Ave.

Lexington, Ky.
Crane Co.
544 W. Main St.
Laib Co., Inc.
Shreve & Vine Sts.

Lima, Ohio
Crane Co.
207 S. Central Ave.

Lincoln, Nebr.
Crane Co.
317 S. Ninth St.

Little Rock, Ark.
Crane Co.
515 E. Second St.

Long Beach, Calif.
Channel Co.
1434 W. Anaheim St.
Crane Co.
824 W. Anaheim St.

Long Island City, N. Y.
Standard Sanitary Mfg. Co.
32-04 Norther Blvd.

Los Angeles, Calif.
Crane Co.
321 E. Third St.
Haldeman Corp. Melo
2220 E. 37th St.
Standard Sanitary Mfg. Co.
3251 Wilshire Blvd. near Vermont Ave.

Louisville, Ky.
Standard Sanitary Mfg. Co.
836 East Broadway.

Macon, Ga.
Crane Co.
500 Broadway.

Madison, Wis.
Crane Co.
645 Williamson St.

Mankato, Minn.
Crane Co.
510 S. Pike St.

Mansfield, Ohio.
Standard Sanitary Mfg. Co.
153 East Fifth St.

Mason City, Iowa.
Crane Co.
19 Eighth St. S. E.

Memphis, Tenn.
Crane Co.
254 Court Ave.
N. O. Nelson Mfg. Co.
690 Linden Ave.
Standard Sanitary Mfg. Co.
666 Beale Ave.

Miami, Fla.
Crane Co.
85 N. W. Tenth St.

Middletown, N. Y.
Orange County Plumbing Supply Co.
34 Cottage St.

Milwaukee, Wis.
Crane Co.
225 W. Capitol Drive.
Standard Sanitary Mfg. Co.
1635 West St. Paul Ave.

Minneapolis, Minn.
Central Supply Co.
312 S. Third St.
Crane Co.
400 Third Ave., No.
Roberts-Hamilton Co.
707-715 S. Third St.
Standard Sanitary Mfg. Co.
306 Essex Bldg.

Mobile, Ala.
Crane Co.
300 N. Royal St.

Montgomery, Ala.
Standard Sanitary Mfg. Co.
210 Coosa St.

BETTER HOUSING PROGRAM

"In this drive, the motive power must come from the dealer"

Mt. Vernon, N. Y.
Dingman Plumbing & Heating Supply Co., Inc.
15 S. 6th Av.

Muncie, Ind.
Crane Co.
610 Jefferson St., So.
Knapp Supply Co.
Ohio Ave. and Dudley St.

Muskogee, Okla.
Crane Co.
302 Commercial St.

Nashville, Tenn.
Crane Co.
181 Third Ave., N.
Standard Sanitary Mfg. Co.
1700 Church St.

Newark, N. J.
Crane Co.
90 South St.
Hajoca Corp.
120 Frelinghuysen Ave.
Howard Plumbing Supply Co.
160 Howard Ave.
William S. Roe, Inc.
165 Mulberry St.
Standard Sanitary Mfg. Co.
528 Ferry St.

New Haven, Conn.
Crane Co.
365 Orchard St.

New Orleans, La.
Crane Co.
1148 S. Peters St.
Standard Sanitary Mfg. Co.
846 Baronne St.

New York, N. Y.
Crane Co.
4730 Twenty-ninth St., L. I. City.
E. Schwartz Plumbing Supply Co.
372 E. 143rd St.
Standard Sanitary Mfg. Co.
18 East Forty-fifth St.

Norfolk, Va.
Crane Co.
2 E. Twenty-second St.

Norristown, Pa.
Hajoca Corp.
223 W. Main St.

Oakland, Calif.
Crane Co.
346 Ninth St.

Ogden, Utah
Crane Co.
Twentieth St. and Wall Ave.

Oklahoma City, Okla.
Crane Co.
705 W. Main St.

Omaha, Neb.
Baker Mfg. Co.
813-817 Douglas St.
Crane Co.
323 S. Tenth St.
U. S. Supply Co.
901 Farnam St.

Oshkosh, Wis.
Crane Co.
37 Market St.

Ottumwa, Iowa.
Iowa Supply Co.

Passaic, N. J.
Central Supply Co., Inc.
838-56 Main Ave.
Crane Co.
321 South Broadway.

Peoria, Ill.
Kinsey & Mahler Co.
400 S. Adams St.
Standard Sanitary Mfg. Co.
112-114 Main St.

Philadelphia, Pa.
Crane Co.
245 Master St.
Fleck Brothers Co.
1631-45 N. American St.
Hajoca Corp.
Walnut St. Bridge at 31st St.
Shuster Plumbing Supply Co.
411-415 N. Franklin St.
Standard Sanitary Mfg. Co.
1215 Walnut St.

Phoenix, Ariz.
Crane Co.
233 S. First Ave.
Standard Sanitary Mfg. Co.
447 East Jefferson St.

Pittsburgh, Pa.
Crane Co.
40 Twenty-fourth St.
Harris Pump & Supply Co.
320 2nd Ave.
Standard Sanitary Mfg. Co.
106 Sixth St.
Standard Sanitary Mfg. Co.
6587 Hamilton Ave.

Pocatello, Idaho
Crane Co.
756 S. First Ave.

Port Huron, Mich.
Port Huron Plumbing & Heating Supply
4th St. at Griswold St.

Portland, Me.
Blake-Rounds Supply Co.
14-26 York St.
Crane Co.
70 St. John St.

Portland, Ore.
Consolidated Supply Co.
235 Stark Street
Crane Co.
160 14th St., N.

Providence, R. I.
Crane Co.
245 W. Exchange St.
Providence Plumbing Supply Co.
47 Pine St.

Pueblo, Colo.
Crane-O'Fallon Co.
216 W. 3rd St.

Reading, Pa.
Hajoca Corp.
2nd & Grape Sts.
Reading Foundry & Supply Co.
522 Chestnut St.

Reno, Nev.
Crane Co.
401 E. Fourth St.

Richmond, Va.
Crane Co.
1223 W. Broad St.
Hajoca Corp.
1208 W. Marshall St.

Rochester, N. Y.
Crane Co.
200 South Ave.
Monroe Plumbing Supply Co.
241-243 Exchange St.

Rockford, Ill.
Crane Co.
300 S. Main St.
Van Denberg Supply Co.
522-530 Cedar St.

Rock Island, Ill.
Standard Sanitary Mfg. Co.
1615-17 Second Ave.

Rosslyn, Va.
Hajoca Corp.
Wilson Blvd. & Military Rd.

Sacramento, Calif.
Crane Co.
1227 Front St.

Salt Like City, Utah
Crane Company
307 W. Second St., South
N. O. Nelson Mfg. Co.
380 W. Second St., So.

San Antonio, Tex.
Alamo Plumbing Supply Co.
637 E. Crockett St.
Crane Co.
1200 E. Houston St.
Standard Sanitary Mfg. Co.
1101 Broadway

San Bernardino, Calif.
Crane Co.
110 South "E" St.

San Diego, Calif.
Crane Co.
1138 India St.

San Francisco, Calif.
Crane Co.
301 Brannan St.
Standard Sanitary Mfg. Co.
349 Sutter St.

Santa Ana, Calif.
Crane Co.
919 Poinsettia St.

Santa Barbara, Calif.
Crane Co.
136 State St.

Savannah, Ga.
Crane Co.
14 W. Broad St.
Hajoca Corp.
Congress & Montgomery Sts.

Seattle, Wash.
Crane Co.
419 Second Ave., S.
Standard Sanitary Mfg. Co.
Stimson Bldg.
1225 Fourth Ave.

Shreveport, La.
Crane Co.
1320 Winston St.
Standard Sanitary Mfg. Co.
1557-1559 Texas Ave.

Sioux City, Iowa
Crane Co.
223 Jackson St.

Sioux Falls, S. D.
Cochran-Sargent Co.
605 E. 8th St.
Crane Co.
326 E. Eighth St.

South Bend, Ind.
Crane Co.
1616 Franklin St., So.
Standard Sanitary Mfg. Co.
407 South Notre Dame Ave.

Spokane, Wash.
Crane Co.
126 S. Post St.

Springfield, Ill.
Crane Co.
921 E. Monroe St.

Springfield, Mass.
Crane Co.
60 Cypress St.
Standard Sanitary Mfg. Co.
Chestnut and Winter Sts.

Spring Valley, N. Y.
R. & R. Plumbing & Heating Supply Co.
Lawrence St.

St. Joseph, Mo.
W. B. Howe Supply Co.
209 S. 4th St.

St. Louis, Mo.
Crane Co.
30 S. Sixteenth St.
N. O. Nelson Mfg. Co.
4300 Ducan Ave.
Peerless-Missouri Co.
5021 Fyler Ave.
Standard Sanitary Mfg. Co.
4140 Forest Park Blvd.
Tallman & Co.
111 Market St.

St. Paul, Minn.
Cochran-Sargent Co.
Broadway at Kellogg Blvd.
Crane Co.
356 Broadway

Staunton, Va.
Hajoca Corp.
438 Waynesboro Rd.

Sunbury, Pa.
Ralph E. Weeks Co.
120 Awl St.

Syracuse, N. Y.
Crane Co.
760 W. Genesee St.
Standard Sanitary Mfg. Co.
615 Starrett-Syracuse Bldg.

Tacoma, Wash.
Crane Co.
1209 South "A" St.

Tampa, Fla.
Crane Co.
1405 Twiggs St.
Hajoca Corp.
Meridian & Washington Sts.

Terre Haute, Ind.
Crane Co.
209 Ninth St.

Toledo, O.
Standard Sanitary Mfg. Co.
1002-1016 Summit St.

Trenton, N. J.
Crane Co.
50 Escher St.

Tulsa, Okla.
Crane Co.
623 E. Third St.

13,000,000 buildings are in need of necessary repairs

Tucson, Ariz.
Crane Co.
35 Toole Ave.
Standard Sanitary Mfg. Co.
247 North Fourth Ave.
Tyler, Texas.
Standard Sanitary Mfg. Co.
212 East Line St.
Utica, N. Y.
Crane Co.
326 Broad St.
Washington, D. C.
Crane Co.
1225 Eye St., N. W.
E. G. Schafer & Co., Inc.
2321 4th St., N. E.
Standard Sanitary Mfg. Co.
1412 F. Street, N. W.
Watertown, N. Y.
Hunting Supply Corp.
236 Factory St.
Waukegan, Ill.
Crane Co.
1219 Glen Rock Ave.
Wausau, Wisc.
Wisconsin River Supply Co.
737 Jefferson St.
West Palm Beach, Fla.
Crane Co.
601 Lantana Ave.
Wheeling, W. Va.
Standard Sanitary Mfg. Co.
46 Eighteenth St.
White Plains, N. Y.
Crane Co.
41 Hamilton Ave.
Wichita, Kans.
Crane Co.
624 E. First St.
Wilkes-Barre, Pa.
Hajoca Corp.
526-32 S. Main St.
Williamsport, Pa.
Fleck-Marshall Co.
766 E. Third St.
Lycoming Supply Co., Inc.
335 W. 3rd St.
Wilmington, Dela.
Hajoca Corp.
4th & Church Sts.
Worcester, Mass.
Crane Co.
45 Green St.

Uncle Sam, through the FHA, is making it easier to make sales. The preceding pages tell the full story of better business now ahead—low cost loans—support from banks—lower prices—all branches of building industry pushing sales — 1500 cities in community drives—our industry united—prizes from D. E. for successful dealers

Let's Go!

Our Industry Has Failed to Use Its Best Salesman—the Plumber

By JOHN J. CALNAN

President, National Association of Master Plumbers

IN preparing this paper, I have solicited suggestions from the various allied interests of our industry in order that I might have the benefit of their respective viewpoints, and thereby enable me to submit for your consideration through a harmonious selection of a combination of them all, a practical program that will enlist the support of the different branches of our industry, who believe in the manufacturer to wholesaler to plumber method of distribution.

I believe the first step in our program is to act through the chairman of our National Association of Master Plumbers Conference Committee, Henry O'Callaghan, who will seek the active co-operation of the manufacturers and wholesalers and form a central conference committee composed of an agreed number of representatives from each group who would encourage and recommend the organization of conference committees in other cities and states similar to the conference committee we have in the state of Illinois headed by State President Henry P. Reger and in the city of Chicago by Charles Gawne, National Secretary; in other words, mobilize on a national scale the strength of those who believe in our method of doing business.

COMBINE FORCES

I believe our experience of the past year has demonstrated the utter folly of temporizing further with those elements responsible in a great measure for the demoralized condition of our industry, and the absolute necessity for us who think alike to combine our forces so we may effectively protect our methods of doing business from being further undermined and also prevent the possibility of it being eventually destroyed.

In discussing the subject of co-operation between the wholesaler and manufacturer and master plumber, I am reminded that the Plumbing and Heating Industries Bureau is a most effective illustration of the value of joint effort by the three branches of our industries.

I happen to be both vice president of the Bureau and chairman of the finance committee. I am, therefore, thoroughly familiar with the extent of the support which the Bureau has obtained this year from the various associations of wholesalers, and I wish to take this opportunity to thank the members of this association for their support and I trust that it will be continued.

VALUE OF PUBLICITY

Publicity, which is the major activity of the Bureau, under our present set-up, is a subject which lends itself particularly well to co-operative effort. Everyone engaged in the plumbing industry gets the benefit of the large volume of newspaper, magazine, and radio publicity which the Bureau is able to obtain year after year.

Furthermore, it is only by co-operating that we can get this much publicity. Neither the Central Supply Association nor the National Association of Master Plumbers, working alone, could get it. Nor could any one manufacturer or any group of manufacturers get it.

Working together, all of us, in an association, we have both the prestige and the impartiality necessary for successful publicity work. As a Bureau supported by nineteen associations of wholesalers, contractors and manufacturers, we have the neutral point of view demanded by editors and by radio stations.

Publicity for Retailer

I am personally very enthusiastic about the usefulness of the Bureau because I have had the opportunity here in Chicago to see so many direct evidences of its activity in the Chicago newspapers. The newspapers have printed many of the "before and after" pictures showing bathroom, kitchen and basement modernization which have been supplied to the editors by the Bureau. Because of the large circulations of the Chicago Sunday newspapers—some of them exceeding a million readers—this is extremely valuable publicity. In fact, if it had to be purchased at advertising rates, I doubt if there is an association in the industry that could afford it.

Chicago, of course, is only one of many cities in which the Bureau articles and pictures designed to create business for you and me are being published. The same articles which I have seen in the Chicago papers you, of course, have seen in your home town newspapers.

OFFERS DOUBLE OPPORTUNITY

These are some of the reasons why I am thoroughly sold myself on the value of the Bureau through co-operative effort. This general publicity is good as far as it goes, but it should be supplemented and I believe will be, by our leading manufacturers who are beginning to realize that the right kind of publicity is absolutely necessary to place their retail outlets on an equal footing

Mr. Calnan gave this talk at the open meeting of the Central Supply Association, held in Chicago on Sept. 28 to discuss the federal housing program.

John J. Calnan

with the irregular sources of supply.

At the time when a nation-wide drive to help the building industry is just getting under way, we of the plumbing and heating division should recognize and utilize the double opportunity offered. We are offered through the support of thousands of allies recruited from a dozen and one other industries, a definite prospect of reviving the great industry from which all of us make our livelihood, and we are offered a simultaneous chance to re-establish our own division on a sounder basis.

All of us are anxious for more business; and more business can easily be made to mean better business if we combine our prompt support of the national housing program with support of policies necessary to the strengthening of the manufacturer-to wholesaler-to-master plumber-to public system of distribution.

COPY WRONG METHODS

To the members of the great National Association of Master Plumbers, I have just issued a message emphasizing a major objective of the present administration—the stabilization of the distribution system which both your association and ours have endorsed. I have called their attention to one of their faults, the failure to support those who support us, both in word and in action.

Until five or six years ago, the plumbing business made a comfortable living for some and a comfortable fortune for others without pressure for salesmanship. Big building years brought work, which to a large extent we did not create. Others started building projects, big or little, we competed for the work among ourselves and for a while there was enough for most of us. Then as the number of manufacturers, of wholesalers and of contractors increased, the competition became keener and we had the phenomenon of record breaking building years without profit to many of us—the so-called "profitless prosperity."

Around 1928, these conditions brought on the discovery that as some speakers told you then, "plumbing goods have not been sold, they have merely been bought." The entire industry has been tardy in adjusting itself to new conditions.

Since that time, such adjustments have been tried. Sales managers of manufacturers got busy studying other industries and in many cases tried to use in our industry, successful methods they learned about from other fields. We have a specialized business in which the plumber supplies the complete plumbing system, assembled from parts which many manufacturers furnish. It is distinct from businesses where the manufacturer assembles the complete unit and the dealer merely delivers it. Failure by manufacturers to recognize this fundamental difference made certain the failure of many sales schemes copied from other fields. But when such inevitable failures developed, the blame was put on the plumber, instead of being placed where it properly belongs.

Through these years, the plumber in most encouraging numbers, has proved his desire and willingness to learn. He has turned out time and time again for sales meetings, attended sales schools, listened to thousands of sales talks, put his money into many disappointing sales drives, and tried with a loyalty that deserves your praise rather than criticism. Much of the advice he received from those who with good intention advised him, later turned out to be bad advice.

Build on The Plumber

The patience with which so many thousands of plumbers tried out time and again sales plans, using their time and money only to find that the leadership they trusted was mistaken—this patience proves that our industry has in its plumbing dealers a loyal and competent group upon which greater sales can be built provided the problem is approached properly. It is time to recognize that our industry has essential peculiarities upon which we should build rather than discarding them for the methods of other industries whose products and services are utterly unlike ours.

For example, the public health factor is predominant in our industry. The national, state and municipal governments recognize this and pass laws requiring plumbing products to be installed by licensed men. Yet some of our sources of supply go ahead year after year, imitating the advertising and selling methods of manufacturers of entirely different products. They try to sell their part of a complete plumbing system in the same way one would sell an automobile or a toothbrush.

ADVERTISE INSTALLED SERVICE

Think for a moment of the differences it would make if the American public, each member of which is only an occasional buyer of our goods, had been educated for years to the vital need of thinking as much about

the ultimate service of plumbing products as about the first appearance. Do you think the mail order companies, the direct-to-you's and all those who have put the art of selling ahead of the art of proper installation, would have even entered this field if we had not deliberately thrown away our strongest and our most distinctive sales weapon?

It has been well said by one of the prominent manufacturers of plumbing fixtures, former Governor Kohler, in submitting the brief of the manufacturers in favor of their established method of distribution, from manufacturer to wholesaler to master plumber, that the sale of the plumbing fixture is incomplete unless it also comprehends its correct installation. Under the state license laws and ordinances, adopted in conformity therewith by towns and municipalities, the installation of plumbing fixtures for reasons of health, must be made under the supervision of the licensed master plumber.

Yet, our sales leaders have kept on copying other industries, trying to sell solely on appearance or on price, encouraging irregular competition by their own shortsightedness, using the other fellow's weapons and not our own special ones, winding up in some cases by beginning to sell these newcomers at better prices than not only plumbers, but even wholesalers must pay.

The master plumber and wholesaler during this period have been operating at a disadvantage, and have been up against a price differential with the mail order and direct-to-you companies, which has been difficult to overcome. The master plumber has not been able to secure a price on plumbing fixtures or materials from the wholesaler, which would enable him to compete with the above mentioned concerns.

As the President of the National Association of Master Plumbers, I am glad to be able to inform you that we are receiving a higher level of intelligent cooperation than we have been offered by many manufacturers and wholesalers in the past. Through our position as dealers, licensed by authorities to install these plumbing goods, they recognize we have a distinctive and preferred position which it is time to use as a major sales weapon, rather than ignoring it longer.

NEWCOMERS IN BUSINESS

Now other new factors are entering the plumbing market with a new class of products. And again their sales experience and methods differ from those with which all of us are familiar. I refer to the development of products such as kitchen cabinets by which the sink is offered merely as a unit of a more complete product rather than being the central point of design and of service in the modern kitchen. Air conditioning offers other new types of products and the manufacturers of such equipment are in many cases new to our industry and unfamiliar with the distributing methods with which this business has been built up.

Take this question of the kitchen cabinet. Even though presented as a new and attractive product, offered as a time saver and a work saver for the housewife, the fact remains that the sink is still needed, is still the center of the kitchen's efficiency and still requires expert and safe installation by licensed plumbers.

We are ready, as plumbing dealers, to sell kitchen cabinets with sinks, but our manufacturers should not allow newcomers, unfamiliar with the distributing practices of this industry, to enter the kitchen market without competition. This is offered as another proof that mere criticism of the plumber is an excuse, not a reason. It is proof of tardy action by the manufacturers.

In this talk, I have not discussed the Federal Housing Program as other speakers have and will do that. I am urging the plumbers all over the country to get behind this campaign. This will also be one of the functions of the conference committee.

But there is a lesson here for all of us in making sure the public knows that every element of the plumbing industry is ready to serve in this national housing campaign. Thousands are helping to sell the idea of improving and repairing homes right now at today's reduced price level. A united front by the whole plumbing and heating division will enable us to benefit from this national drive.

With reference to the growing sentiment among the owners and merchandisers of large department stores in shopping centers to display and sell plumbing fixtures and supplies, which has on more than one occasion been called to my attention by George Hoffman of Crane Co., I believe with the co-operation and support of the wholesalers that some program can be formulated through our various proposed conference committees whereby the plumbing contractors can present a united front in every village, town and city in the United States to prevent encroachments on the industry from this source.

Support Your Codes

Several months ago at the annual convention of the Indiana Master Plumbers' Association held at Indianapolis, Ind., I had the pleasure of listening to William E. Price, President of the Central Supply Association, make an interesting and enthusiastic address on organization, emphasizing the importance of close co-operation between the wholesaler and the master plumber, especially in the securing of proper plumbing codes.

It is said that every man has a "hobby" and I can say without departing far from the truth, that I am in complete agreement with Mr. Price's view in this respect, as for the past few years I have consistently advocated the adoption and enforcement of adequate sanitary laws regulating the installation of plumbing as a safeguard to public health. It is, therefore, a pleasure for me to endorse as my own, the sentiments of one of the prominent members of your organization.

PLUMBING AND HEALTH

You need scarcely be reminded that in connection with the outbreak of amebic dysentery in Chicago last year, it was decided by a committee of eminent physicians from throughout the country, headed by Dr. Herman N. Bundesen, President of the Chicago Board of Health, that it was due to a contaminated drinking water supply from cross connections and antiquated plumbing; most of which was put in by handymen and house engineers, who lacked the training and experience necessary to know the correct method of making installation or repairs to

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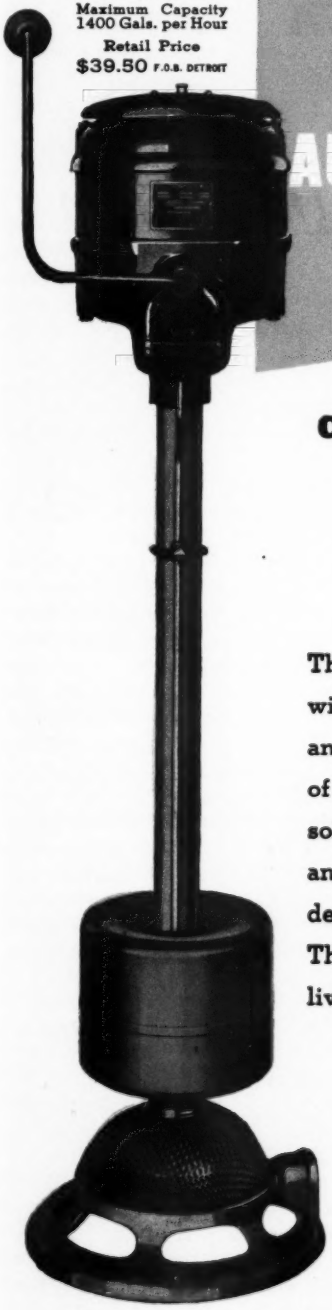

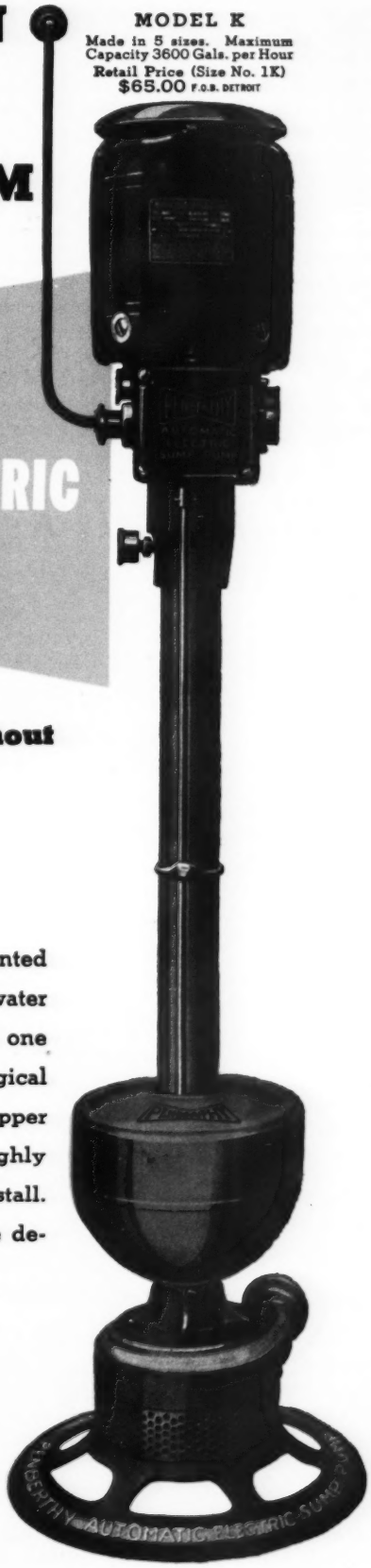

Copper and Bronze Throughout

The plumbing contractor who is confronted with the problem of removing seepage water and keeping a basement dry, will find one of these Penberthy Pumps to be the logical solution. Ruggedly constructed of copper and bronze throughout, they are thoroughly dependable, compact and easy to install. They are carried in stock for immediate delivery by jobbers everywhere.

PENBERTHY INJECTOR COMPANY

Manufacturers of Quality Products Since 1886

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the plumbing system, whom the doctor designated as Public Enemy Number One.

Since that time, both at the annual meeting of the American Medical Society of Cleveland, Ohio, in July, and the annual convention of the American Public Health Association at Pasadena, Calif., on Sept. 3 to 6, the importance of sanitary plumbing as a means of preventing water borne diseases was recognized and acknowledged. The relation between proper plumbing and public health has been re-established, and we should reinforce our efforts to secure the adoption and enforcement of plumbing codes. We must not only strengthen and bring up to date existing ordinances, but institute plans to obtain adequate codes where none now exist.

The wholesaler should be just as much interested in their observance as is the master plumber. It is part of his livelihood as well as his duty to see that these laws are enforced. Since being elected President of the National Association of Master Plumbers, through the medium of our National Bulletin, I have made an earnest plea on the part of our members throughout the country to work actively to secure proper plumbing codes and strengthen those that now exist.

I believe further, and have so advocated that as a means of securing better enforcement of these ordinances, the seller of plumbing fixtures both old and new be required, as a health measure, to periodically report to the department, the sale of all plumbing fixtures so that the bureau of plumbing inspection can check and see that they are installed in accordance with the ordinance requirements. Such an ordinance is now in force in the city of Birmingham, Ala., and from all reports, is working out satisfactorily. A similar ordinance for Chicago has been prepared by a committee of which Robert E. Murphy is chairman, for presentation to the city council.

Plumber Is Keystone of Sale and Installation

I believe further, as a means of protecting public health from incompetent, untrained handymen, janitors and engineers, that the manufacturers of plumbing supplies should work with and financially support the promotion of adequate plumbing codes; and while I do not wish to consider them a cure-all, I do feel that if they are intelligently prepared and properly enforced to the end that we strengthen the master plumber who is the keystone in the arch of our industry set-up, we will be taking advantage of our strongest weapon of offense and defense to promote our mutual welfare.

The sale of all plumbing fixtures and appurtenances having a sewer or water connection under existing ordinance regulations should be made through the licensed master plumber, who alone is qualified and responsible under the law to properly install them, and in my opinion is the only way the health authorities can be in a position to effectively enforce the law.

It appears to me that the first objective should be to place the seller of all sanitary plumbing appliances having sewer or water connections under direct control of our plumbing laws.

Years ago, when practically all plumbing goods were sold only to licensed master plumbers, codes were adopted to protect the public from faulty plumbing installations and the master plumber was held, and still is, responsible and accountable under the law for their correct installation.

PROPER INSTALLATION IS VITAL

Today, however, the original intent of the law is not being carried out because of the fact that sales of plumbing goods are no longer confined to the regular legitimate trade channels. Sales are being made to other sources by people who do not recognize the underlying principles of our business or are too unfamiliar with them to properly gage the master plumber's true relation to them. Anyone possessing even the simplest rudiments of the science of plumbing would not attempt to treat the sale and installation of sanitary appliances as two separate matters. They are bound strongly together and can not be logically separated any more than you can take the filling of medicinal prescriptions out of the hands of licensed and registered pharmacists. The amebic dysentery outbreak, attributed to "handyman" plumbing, is the strongest demonstration of what uncontrolled sale and installation of plumbing products can do.

While it is true that great advances have been made in the past, it can be very readily seen that there is ample room for expansion and improvement to bring out codes into harmony with these principles.

It is our belief that a planned program for securing proper sanitary codes and regulations is necessary to success. Therefore, a committee has been appointed to assemble all available information on sanitary codes. Typical enabling ordinances and legal opinions, establishing the constitutionality of plumbing regulations, are some of the materials this committee is now gathering.

READY FOR ACTION

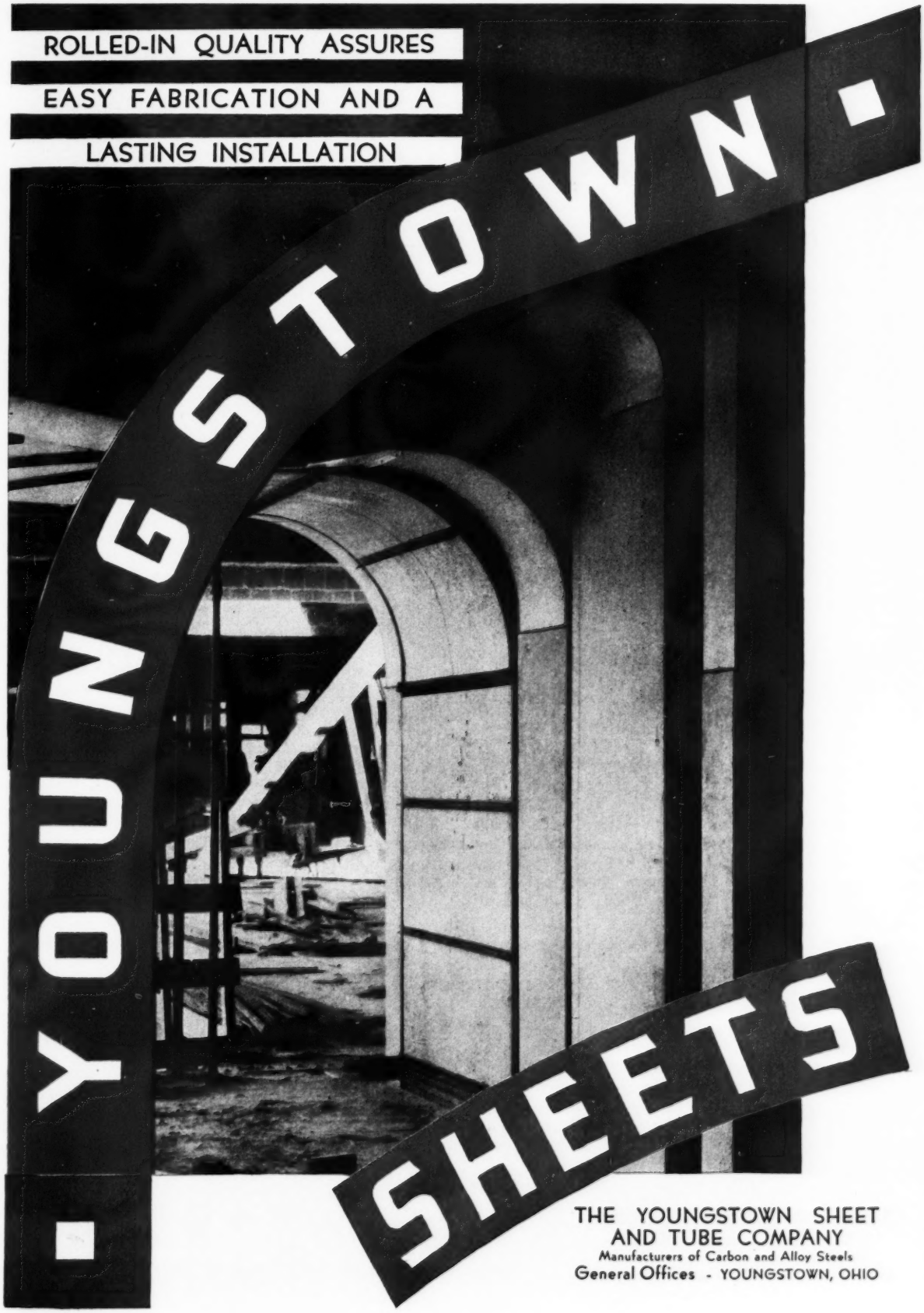
A manual of procedure is being prepared. This manual will set forth each step in securing proper sanitary codes. Armed with such a manual, and the proper legal citations, an interested group of master plumbers can take advantage of present public opinion and secure the proper protection of public health through plumbing regulation.

This thought is based upon the same principle underlying the sale of firearms, drugs, etc., to the consumer and in my opinion, is the only consistent and safe argument for us to propose and fight for.

There are many lessons to be learned from the depression and some of them are perhaps blessings in disguise.

Its effect on new construction has served to call our attention to the serious inroads being made by others in the remodeling and replacement part of our business; in fact, this is the only business at the present time to be had, so we are forced whether we like it or not, to

(Continued on Page 163)



THE YOUNGSTOWN SHEET
AND TUBE COMPANY
Manufacturers of Carbon and Alloy Steels
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QUESTIONS AND ANSWERS!

1—

To The Editor:

I would be very pleased to have your suggestions for a sewage disposal system for a hospital accommodating a total of 120 persons including staff. A quantity of disinfectant unavoidably is used in a building of this type.

I hesitate to construct an aerated sludge system as the size of the building hardly warrants the expenditure.

Toronto, Canada — A. P. R.

To The Reader:

With the population mentioned, the plant should be designed for a daily flow of at least 30,000 gallons, and preferably a little more (that is, if Canadian water consumption is on a par with consumption here, which I believe it is).

There are two methods that can be recommended; though because I know nothing of the degree of treatment that is necessary or desirable, nor of other factors that are very important in design, it is difficult to make any direct recommendations.

My own choice for the situation would be a chemical treatment plant, using ferric chloride coagulant. The advantage lies in the fact that any degree of treatment that is desired at any time can be obtained. If, during August, for instance, it is necessary that the effluent be clear, stable, non-putrescible, and free from odor or other objectionable features, this can be attained at an operating cost considerably less, I believe, than with aeration or any other method.

If, on the other hand, during December, practically no treatment is required beyond the removal of the grosser solids, this can be accomplished at an operating cost which will be practically nothing except for a small amount of attention.

Thus, using chemical treatment, we have a low initial cost—and we have the ability to produce an effluent, almost on a day's notice, which will meet any desired degree of purity. (Purity is a poor word, there, but perhaps the best available.) The cost depends directly upon the degree of treatment attained, and is very reasonable under almost any conditions.

About the only other method I would feel like considering, if any considerable degree of treatment is necessary, would be an Imhoff tank and trickling filters. This is a standard method of treatment and will give fairly good results under most conditions of service. In my opinion, hospital wastes would interfere, but not seriously, with the operation. It would be desirable to provide, however, a chemical dosing tank ahead of the Imhoff tank, so that a neutralizing chemical could be added, if necessary.

If conditions require, the effluent of either process should be chlorinated. Chlorination, with chemical treatment, would, or could be made to, produce an effluent that literally would be "fit to drink."

W. A. Hardenbergh

1. *Rural sewage disposal problem is complicated by the necessarily large use of disinfectants in connection with a hospital. System is designed to accommodate 120 persons including the hospital staff.*

2. *Reader comments on answer to question published in August issue. We welcome the opportunity of stressing again the importance of clearly understanding the cause of circulation in gravity circulating hot water systems.*

3. *This is the time of the year when chimneys are placed in service again and, likewise, it is the time when owners should be impressed with the vital part draft plays in heating equipment, especially that of the solid fuel burning type.*

2—

To the Editor:

I read with interest the answer to the question on page 52 of the August issue of Domestic Engineering, "Which is correct to say, that heated water rises or that cold water falls?"

The reply, which is published, doesn't answer the question. The published reply is very argumentative and when one gets through, one finds the question still unanswered.

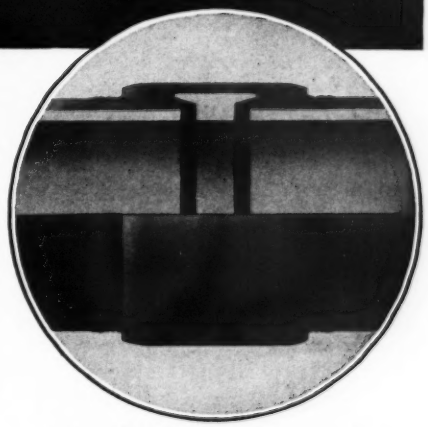
The correct answer is, I believe, that "heated water rises and cold water falls."

To properly answer the question, what else can be said? — S. W. A.

To the Reader:

The reason the question which was published was selected is that many water circulating problems are con-

PLUMBING and heating contractors can be fully assured that corrosive municipal and industrial waters, salt waters, drainage, and certain solutions have no ill effect on Duroline. This highly protective cement lining was scientifically developed primarily to resist the destructive action of waters that rust, corrode, or otherwise attack pipe in office buildings, factories, hospitals, public buildings, residences, etc. And the price, only slightly higher than galvanized pipe, involves no handicap to its general use. Since it is offered in regular NATIONAL Pipe the strength and other desirable features of the highest quality steel pipe are obtained, plus this new defense against corrosion. Duroline Pipe will solve many corrosion problems once and for all. Outstanding installations are giving added proof every day. A bulletin describes in detail the development of this remarkable product. Write for it today!



Section of National DUROLINE Pipe coupling and joint. (Note special highly corrosion-resistant joint compound on end of pipe and on threads.)

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NATIONAL DUROLINE PIPE

fused because of the idea that heated water in itself will rise. There is nothing about heated water which in itself will cause it to rise. As you know, it is based entirely upon relative weights per unit of volume. Actually the motive force is gravity and unless the heating of the water throws the circulating system out of a state of equilibrium, or balance, circulation cannot possibly result from the heating of the water.

It is our opinion that there would be many fewer troubles in gravity circulation, if those who are dealing with this subject would forget the idea that heated water rises and think only in terms of the fact that cold water will fall when there is an unbalanced condition in the system due to the heated and light water being created at a low point in the system. Certainly, there would be a general tendency among installers of gravity circulating systems to get as large a head as possible, because it is so generally understood that the farther a body falls, the faster will be its velocity and likewise the greater will be its momentum.

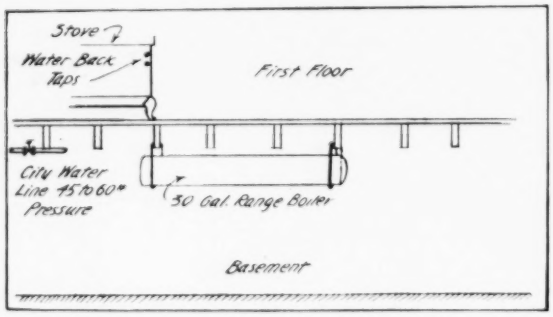


Fig. 1

On the other hand, with the idea prevalent that heated water will rise, you find in actual installations conditions wherein the heating unit is close to or even at the top of the circulating system and in most cases, there is little appreciation of the necessity of keeping the storage tank in gravity circulation water heating systems as high as possible above the water heater.

It is the writer's opinion that this subject can be visualized most clearly by thinking of a gravity circulation system as being comparable to an endless chain conveyor system, wherein the buckets are loaded at the top and emptied at the bottom. Here, as is obvious, movement of the system is due entirely to gravity just as in a water circulating system. The heavy loaded buckets at the top fall because the buckets are emptied or made light at the bottom. If the buckets were emptied on the up-side at a point, say, one-quarter down from the top, obviously the movement of the conveyor would be much slower than if the buckets were emptied at the bottom. To carry out the analogy, the point of unloading the buckets is the point at which the water is heated in a gravity circulation job.

The foregoing sets up the reasons for our making such a point of saying that heated water necessarily does not rise but that cold water falls and in falling pushes heated water up. If it were absolutely correct to say heated water rises, then it would be just as logical to expect a heated system to pick itself up and rise out of the building containing it. This, of course, is ridiculous, but merely points out an extreme to which the idea might be carried as a result of thinking inaccurately regarding this action.

2—

To the Editor:

I have a range with a water back in the kitchen and desire to install a water tank in the basement on the ceiling in a horizontal position as shown in Fig. 1. Will

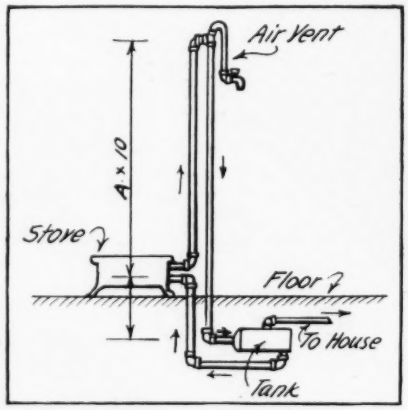


Fig. 2

you kindly indicate how the piping should be run so as to circulate to this tank successfully?

Maryland. B. J.

To the Reader:

The installation which you propose is impossible in the ordinary residence owing to the fact that sufficient height is not available to assure satisfactory circulation. It has been found by experience that in order to force hot water to go down to a storage tank located below the

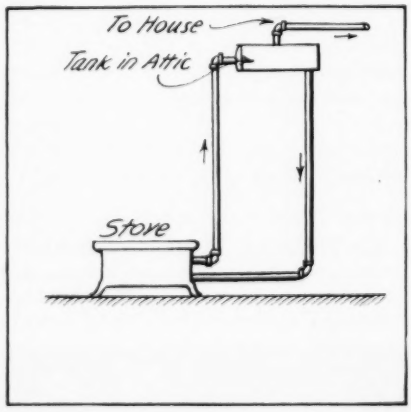
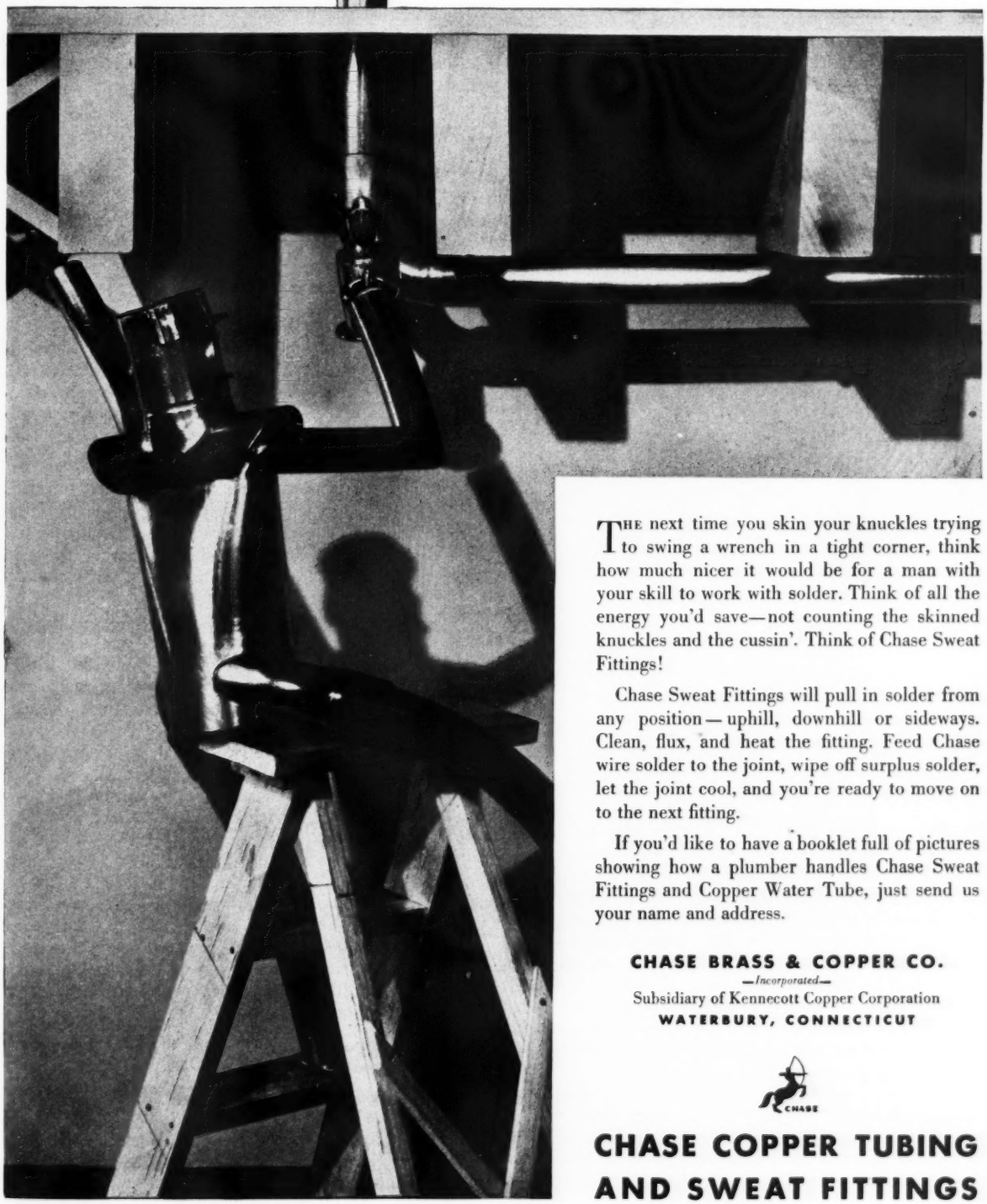


Fig. 3

source of heat, the pipe must first be carried up about 10 times as far above the source of heat as the tank is

HANDY IN *tight places*



THE next time you skin your knuckles trying to swing a wrench in a tight corner, think how much nicer it would be for a man with your skill to work with solder. Think of all the energy you'd save—not counting the skinned knuckles and the cussin'. Think of Chase Sweat Fittings!

Chase Sweat Fittings will pull in solder from any position—uphill, downhill or sideways. Clean, flux, and heat the fitting. Feed Chase wire solder to the joint, wipe off surplus solder, let the joint cool, and you're ready to move on to the next fitting.

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below the source of heat. This is illustrated in Fig. 2 and, if we assume that your tank is about 5 ft. below the water back, then it will be seen that the hot water line from the tank must be carried up a distance of 5 ft. multiplied by 10 or 50 ft., after which it drops down to the tank; it also is necessary to air vent the top of this loop with a fixture connection taken off of the top and arranged so as to permit air to collect in the branch in small quantities and to provide for the blowing out of this air when the faucet at the fixture is opened.

The reason that the supply line must be carried up so high is so that the average temperature in the supply line side—including the cold water passing up from the tank to the inlet of the water back—will be higher than the average temperature in the other side where no cold water enters into the picture. It is very unusual to be able to obtain the necessary height in the ordinary residence to make the placing of the tank in the cellar practical. Possibly you may be able to accomplish the desired result by placing the tank in the attic or roof space, as indicated in Fig. 3, in which case no difficulty in circulation will be encountered.

3—

To the Editor:

I have a customer who is complaining about his chimney draft on a hot water heating boiler which he has had in quite a few years and which he says during the last three or four years has not drawn well. It seems to be necessary to keep the main damper on the boiler open at all times and to regulate the boiler by means of the check draft. The boiler is a seven section cast iron boiler with the chimney run straight up from the cellar to a point about 4 ft. above the peak of the roof. The chimney is about 40 ft. high. It has two flues of 8-in. tile set side by side with nothing between the flues—no cement or brick.

One of these flues previously was used for the kitchen stove but about three years ago the stove was removed and I thought that the removal of the kitchen stove may have resulted in cold air being drawn down the kitchen flue and thus cooling off the other flue which is used for the boiler. Do you think that, if the boiler flue at the point where it enters the chimney were connected into both flues so that both flues would be hot, this would be any improvement?

New York. S. A. C.

To the Reader:

We believe that the cause of the gradual loss of the chimney draft may be a combination of the cold kitchen flue as our reader suggests and the falling out of cement in the joints of the tile boiler flue so that inward leakage takes place in the boiler flue. Regardless of whether this inward leakage is of cold air or hot air, the boiler draft will be affected; the inward leakage of cold air is worse than the inward leakage of the same amount of hot gases because the cold air not only spoils the boiler drafts by leakage but also cools the boiler gases so that less draft is produced.

If this were a well built chimney there probably would be no noticeable difference in the boiler draft whether the kitchen flue were in use or not as the intervening brick and mortar between the two flues would act as a leakage stop and also as an insulator. With nothing between the two tile flues leaks in both will allow a flow from one to the other and cause difficulty.

What our reader is interested in, however, is a remedy and the connecting of the boiler smoke pipe to both chimney flues will not do the trick as cold air will flow down one flue and enter the other flue at the bottom where a cross connection is made by the connecting of the boiler smoke pipe to both flues. This idea may be used successfully, however, if the partition between the two flues is removed about 4 ft. down from the top of the chimney and about 4 ft. up from the smoke pipe connection. This results in making the chimney a single chimney with an interior partition running only a portion of the distance and effectually will prevent the setting up of a down draft in one flue.

Questions For READERS

The following question was asked in the August issue, and the following answer is by a reader:

If a factory goes down to 50 deg. Fahr. during the night and has 1,000 tons of brass in stock in process of manufacture, how many additional boiler horsepower will be required to heat the brass, if the factory is to be brought back to 60 deg. Fahr. in one hour in the morning?

If the factory goes down to 50 deg. Fahr. and has 1,000 tons of brass in stock, the extra amount of heat required in the morning to raise this amount of brass from the 50 deg. Fahr. to which it has cooled up to the 60 deg. Fahr. desired in the shop may be found by multiplying the total pounds of brass by the specific heat and by the number of degrees through which the brass must be raised. In the case of brass the specific heat varies somewhat with the mixture but 0.09 may be taken as an average figure for demonstration purposes.

The total number of pounds of metal to be heated is

1,000 tons × 2,000 lb. or 2,000,000 lb.

and to raise this amount of metal 1 degree will require

2,000,000 × 0.09 Btu. or 180,000 Btu.

and to raise this amount of metal from 50 deg. Fahr. to 60 deg. Fahr. (or 10 degrees), will require

180,000 Btu. × 10 degrees or 1,800,000 Btu.

There are 33,472 Btu. in a boiler horsepower but this figure generally is taken at around 33,000 Btu. for convenience and safety; therefore the boiler horsepower required to raise the metal 10 degrees in one hour will be

1,800,000 Btu./33,000 Btu. or 54.5 Bhp.

This indicates how the metal stock on hand in a factory may increase the heating load over and above all the normal heating requirements.

How Would You Answer This Question?

Is it more desirable to connect a house sewer to a street sewer near the top of the street sewer or near the bottom of the street sewer and why?

Answers based upon your experience, suitable, will be paid for and published in the December issue.

Automatic Heat *and* Air Conditioning

In this issue, benefits of winter air conditioning and automatic heat are shown as having been proven by a set of actual tests

Sell Comfort — and Automatic Heat and Air Conditioning Sales will take care of themselves

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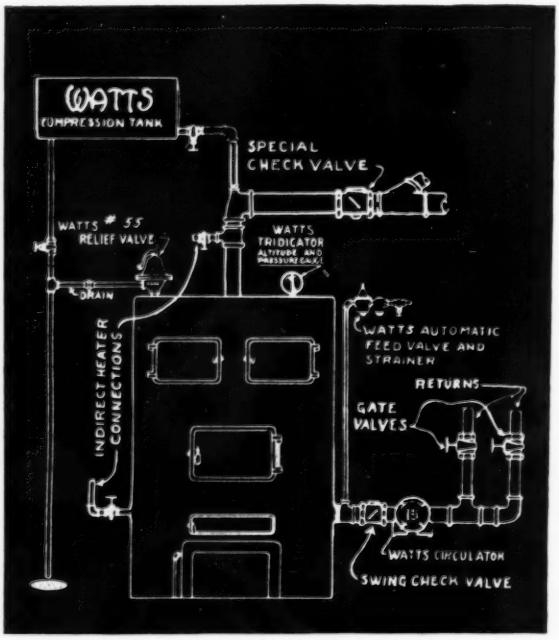

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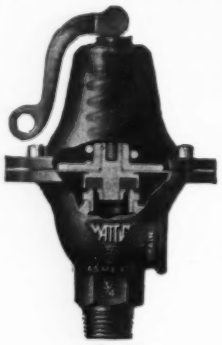

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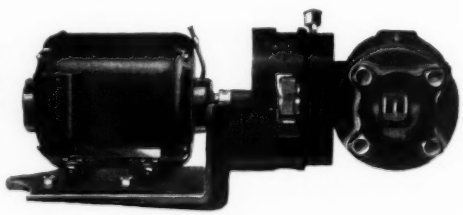

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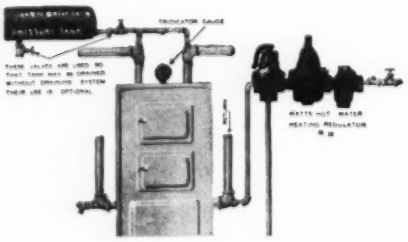

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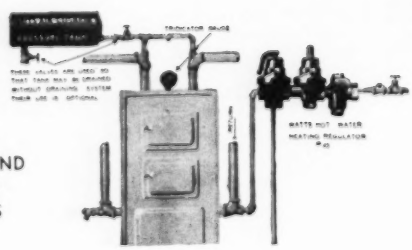

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October, 1934

A Timely Campaign

PLANS for reorganizing the Oil Heating Institute are being brought to the stage for action at just the right time. Many factors warrant confidence in the business-producing value of these plans, more confidence than would have been justified some months ago.

The factor of greatest importance in making the action of the oil burner manufacturers and accessory makers so timely, is the energetic, nation-wide drive now gaining momentum in the home market. Anyone connected with the housing industry has begun to feel the effects of the federal housing program.

The reorganized Oil Heating Institute can do a definite job for all those interested in advancing the use of automatic heat with oil burners. In addition to the burner and accessory manufacturers, this should include producers of fuel oil who have been consistently tardy in recognizing their obligations to develop an expanding market for oil burning equipment in the home. These producers originally rated the market for fuel oil as too small for their serious consideration. The steady growth of the fuel oil market has altered this first impression, but it has been difficult to get producers to rank the home market, which the oil burner industry was developing for the producers, as a major sales obligation on those producers.

Progress has been made in the last few months and in some cases the wide-flung sales weapons of the big producing companies are beginning to be used as a means of increasing the sale of fuel oil, and consequently of oil burning home equipment. Filling stations here and there are starting to tell the public of the advantages of oil burning appliances. Trucks are carrying the same sales messages.

Fits in with Housing Drive

UNDER the leadership of the Oil Heating Institute, the many component parts of the oil burner industry can be brought together to do this nationwide job. A few weeks ago, the reorganization expenses for this Institute were underwritten by eight oil burner manufacturers and one accessory maker. A few days later, a special Institute committee of the American Oil Burner Association met to start making plans for raising a large fund through which a nation-wide advertising and publicity campaign could be carried on in 1935.

Thousands of companies and a great many more thousands of salesmen and dealers in all branches of the housing industry are working today with new enthusiasm to carry forward the better housing campaign with at least 1,200 communities carrying forward united drives to improve housing conditions in their localities, the Oil Heating Institute has an exceptional opportunity to help everyone in the automatic heat industry. The earlier it gets into definite action, the better for this industry.

New Set-up on Codes

COINCIDENT with the reorganization of the NRA, as disclosed in the resignation of General Johnson, the oil burner industry has revised the make-up of its Code Authority. The two events are by no means an example of cause and effect but their simultaneous occurrence may easily affect the business affairs of all in the oil burner industry.

Through a nation wide voting plan, reported on a following page of this issue, the industry has just selected five manufacturers and four dealers to administer the oil burner code. The new authority is thus a body selected by the votes of those in the industry and for that reason are counted upon to interpret accurately the code views of the industry.

The new code heads are Lattner (Century), Fleischmann (May), Hayward (Ray) and Donovan (G. E.) for the manufacturers with one more to be announced, and Buckley (Providence, R. I.), Porter (Minneapolis, Minn.), Oppenheimer (Baltimore, Md.), and Michael (Portland, Oreg.) for the dealers.

The oil burner code got an early start. The NRA was not ready to answer problems to which effective code administration required prompt answers. Now that NRA has entered its second phase of code administration and enforcement, the new oil burner code authority may be offered the chance to make this code accomplish at least some of the promises which led to the enthusiastic rush for codes a year ago.

NEWS AUTOMATIC HEAT And

1900 PRAIRIE AVE. OCTOBER

Oil Burner Code Authority Elects New Officers

BULLETIN

NEW YORK, October 1 (By wire).—New Code Authority for oil burner industry will have as manufacturer members J. A. Lattner, A. J. Fleischmann, Nelson S. Hayward, and J. J. Donovan; as dealer members Alfred Buckley, Ray S. Porter, M. M. Oppenheimer, and A. Michael. Organization meeting scheduled for October 10th, Pennsylvania Hotel, New York City.

The Oil Burner Code Authority, Inc., 342 Madison Avenue, New York City, has just announced that the country, as far as this industry is concerned, has been divided into four areas, each consisting of twelve states as follows:

Area 1.—Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Ohio, West Virginia.

Area 2.—Nebraska, Michigan, Indiana, Illinois, Wisconsin, Kansas, Minnesota, Iowa, Missouri, Kentucky, North Dakota, South Dakota.

Area 3.—Maryland and Washington, D. C., Virginia, North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, Texas.

Area 4.—Montana, Wyoming, Colorado, Oklahoma, New Mexico, Arizona, Utah, Idaho, Washington, Oregon, Nevada, California.

After October 1, 1934, the Code Authority shall consist of nine members: Five representatives of manufacturer members of the industry and four representatives of dealer members of the industry elected by members of the industry. Of the nine representatives of members of the industry, there shall be at least one manufacturer representative and one dealer representative from each of the four areas. The ninth member shall be a manufacturer representative selected from any one of the four areas.

LENGTH OF OFFICE FOR MEMBERS

Each of the nine representatives shall have his principal place of business within the area from which he is elected.

Members of the Code Authority shall hold office for one year from October 1, 1934, or until the termination of the Industrial Recovery Act if prior to such period termination, or until their successors have been elected and shall have qualified.

The five representatives of manufacturer members may organize as a manufacturer division Code Authority, to act on manufacturer problems; and the four representatives of dealer members may organize as a dealer division Code Authority, to act on dealer problems. As there is an even number of dealer representatives, in the case of a tie vote on any matter, the problem shall be referred to the Code Authority as a whole.

On September 6, 1934, the Code Authority nominated, subject to the approval of the Administrator, two qualified manufacturers and two qualified dealers from each area, as well as two qualified manufacturers selected from any of the four areas.

The nominees for the various areas are as follows:

Area 1. Manufacturer representatives: Ray G. Whipple, Springfield, Mass.; Eugene C. Clarke, Bethlehem, Pa. Dealer representatives: Charles R. Kahn, Jamaica, N. Y.; Alfred Buckley, Providence, R. I.

Area 2. Manufacturer representatives: J. H. Hirsch, Chicago, Ill.; J. A. Lattner, Cedar Rapids, Iowa. Dealer representatives: A. K. Perego, Milwaukee, Wis.; Ray S. Porter, Minneapolis, Minn.

Area 3. Manufacturer representatives: A. J. Fleischmann, Baltimore, Md.; Howard K. Pyle, Baltimore, Md. Dealer representatives: William Conradis, Washington, D. C.; M. M. Oppenheimer, Baltimore, Md.

Area 4. Manufacturer representatives: Nelson S. Hayward, San Francisco; A. C. Jenkins, Seattle, Wash. Dealer representatives: A. Michael, Portland, Ore.; Thomas A. Fostor, Denver, Colo.

The nominees for manufacturer representatives at large are: J. J. Donovan, New York City; W. F. Brannan, Baltimore, Md.

MEETINGS HELD IN FOUR AREAS

After the distribution of the ballots, meetings were held in the four areas on Tuesday, September 18, at 2 p. m. as follows:

Area 1. General Heat and Appliance Co., 94 Massachusetts Avenue, Boston, Mass., under temporary chairman, D. J. Edwards.

Area 2. Becker-Marsden Co., 3436 Lyndell Blvd., St. Louis, Mo., under the supervision of A. Jack Becker, temporary chairman.

Area 3. Sherwood Bros., Inc., 1122 North Charles Street, Baltimore, Md. Temporary Chairman, T. E. Carson.

Area 4. Rotary Oil Burner Co., 4575 Horton Street, Oakland, Calif. Temporary Chairman, H. Phillips.

At these meetings nominations other than those made by the Code Authority may be made from the floor. Following this action, ballots were to be marked and returned promptly to the Secretary of the Oil Burner Code Authority, 342 Madison Avenue, New York City, on or before September 29.

Will Reorganize Oil Heating Institute and Its Activities

A special meeting for the reorganization of the Oil Heating Institute was held Tuesday, September 11, at the Roosevelt Hotel in New York City. After a report from the Special Oil Heating Institute Committee ap-

pointed by President R. M. Sherman in July, nine outstanding manufacturers, including one accessory manufacturer out of the eleven organizations represented at the meeting, pledged themselves to underwrite the reorganization expense that would be required in developing an adequate educational program for 1935.

A meeting will be held in New York on Tuesday, October 9, at which time a temporary board of directors will be elected and further steps taken in bringing about a reorganization of the Institute, its membership and its activities.

Upturn Predicted in Sale of Air Conditioning Equipment

The next twelve months should definitely show a substantial increase in sales of air conditioning equipment, according to H. Curley Jamerson, general sales manager of Temperature Corporation, New York City. This statement is based on Mr. Jamerson's observations during a 5,000-mile trip just completed, in which he covered 20 states in the East, South and Middle West.

"Two factors are particularly significant," Mr. Jamerson said. "In the first place, the American public is beginning to realize that air conditioning equipment is no longer expensive. Statistics show that many home owners, who have been seeking a form of air conditioning, have spent from between $750 to $2,000 for the addition of a sleeping porch. Even then the home owner was at the mercy of the elements. Today, at a cost considerably less, it is possible to deliver completely conditioned air to the average house, rain or shine, summer or winter.

"Secondly," Mr. Jamerson pointed out, "the year-round complete air conditioning feature is likewise increasing in favor. Sales for strictly heating and humidification this fall are showing a substantial volume. In most instances the additional equipment for cooling, where necessary, will be purchased in the spring. This divides the cost to the consumer and at the same time insures a year-round business for the dealer."

The Temperature Corporation, of which Mr. Jamerson is general sales manager, is headed by Walter P. Chrysler, Jr. This company is the national distributor for the air conditioning equipment manufactured by Chrysler Motors.

Council for Florida Is Established to Promote Air Conditioning

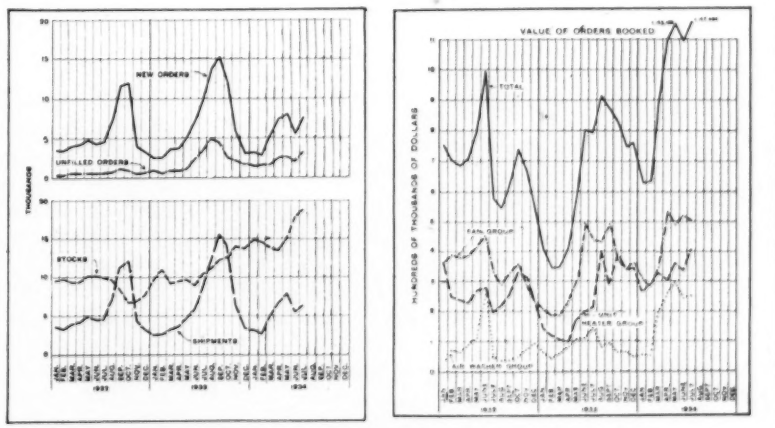
With a view to providing authoritative information concerning air conditioning systems and operation to business men and residents of southeastern Florida, the Air Conditioning Council of Southeastern Florida has been organized. Members of the council represent individuals and firms handling air conditioning equipment, and their program is planned to co-operate with the various departments of the city, including the inspection department, in handling matters affecting the installation and operation of air conditioning equipment in the interest of public health.

Another important objective of the council is to attempt to bring to the attention of physicians and the medical profession the health features connected with air conditioning.

INCREASED INTEREST IN EQUIPMENT

During the past few months there has been such an increasing interest in the use of mechanical equipment to control temperature and clean and circulate the air in stores, industrial plants, residences, offices and other commercial buildings that the formation of this council became necessary if authentic information was to be disseminated.

The officers of the council are: H. W. Ferguson, president; Alexander Orr, III, vice president; C. R. Quigley, treasurer, and C. K. Lingo, secretary. Directors are J. V. Davidson, C. R. Higgins and Maurice Connell. The headquarters of the council are in Miami.



These charts are taken from government reports and portray statistically the recent sales record of two commodities important in the automatic heat and air conditioning field. The curves at the left are for sales of oil burners while the right hand curves show value of orders booked for air conditioning equipment

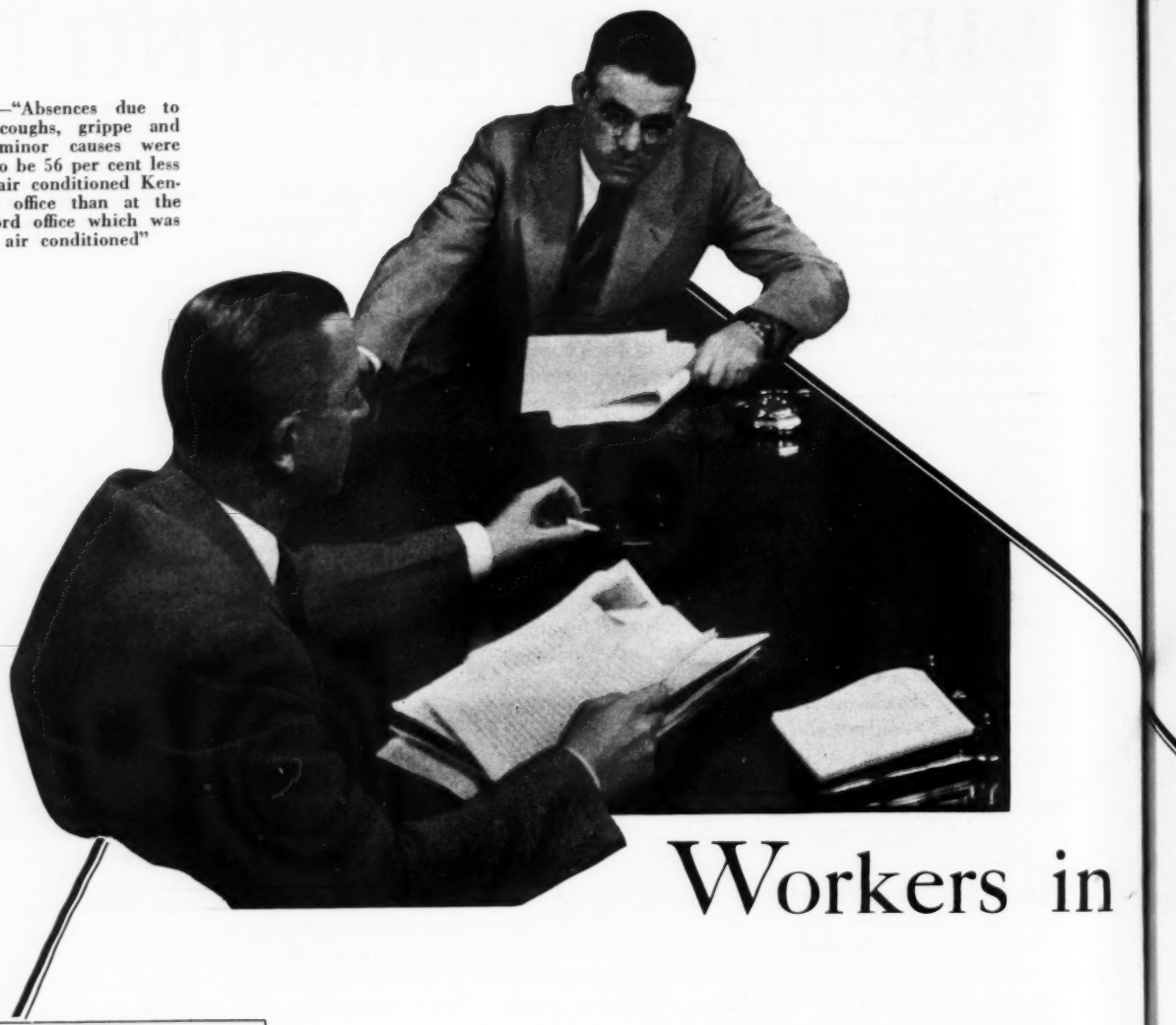


Fig. 1—"Absences due to colds, coughs, grippe and other minor causes were found to be 56 per cent less at the air conditioned Kensington office than at the Frankford office which was not air conditioned"

Workers in

By H. H. Mather

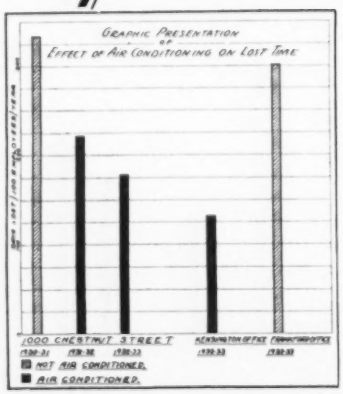


Fig. 2—Chart compares health benefits

THE first studies described in this article to determine the effect of air conditioning on health were made in the main office of the Philadelphia Electric Company at 1000 Chestnut Street where a complete air conditioning system was installed on the main floor in June, 1931. This included the showroom where merchandise is displayed, the customers' service section, the cashiers' and manager's offices.

Comparison was made of forty-five employees who had been in the office for one complete year before and one complete year after the air conditioning had been installed. Only diseases of the respiratory tract and other minor illnesses, where the air breathed had a vital relation to good health were considered. A reduction of 33 per cent in lost time was found to have taken place during the first year of operation. Analysis for the second year of operation showed a reduction in lost time of 46 per cent.

In short, during the first year of operation, absences due to respiratory illness had been reduced from 3.34 days per person per year to 2.21 days per person per year. The second year of operation showed a further decrease to 1.79 days of absence per person.

Studies in the new Kensington office of the Philadelphia Electric Company were carried out along different lines. Here the air conditioning system had been installed at the time the office was built and offered no opportunity to make before and after studies of employees. It was, therefore, decided to compare health records of men and women employed in this office with health records for a similar office that was not air conditioned. The Frankford office was selected for this comparison.

The lost time analysis covered a period from September 1, 1932, to August 31, 1933. During this period absences due to colds, coughs, grippe and other minor causes were found to be 56 per cent less at the air conditioned Kensington office than at the Frankford office which was not air conditioned.

In developing a general analysis for commercial applications we believe that an absence due to sickness of seven days per person per year is conservative. The analysis of the records for our buildings showed that 75 per cent of the total absences were due to minor illnesses. Applying this percentage to the total absence due to sickness, we find that an average of 5.25 days per person per year are lost due to minor illness.

The two air conditioned offices showed an average decrease in lost time due to minor illness of 45.4 per cent. This reduction when applied to the figure of 5.25 days and evaluated at $5.00 per employee per day represents a potential saving of $11.90 per employee per year.

It should be noted that the saving of $11.90 per employee per year is due to the reduction in lost time and does not include an evaluation of any other advantages of air conditioning such as increased efficiency, etc.

Let us see what this $11.90 represents in terms of the annual owning and operating cost of an air conditioning system. We will consider an office of 6000 sq. ft. with a 10-ft. ceiling. This office will require about 20 tons of refrigeration. The installation could probably be made for $500.00 per ton and in most cases the cost would be considerably less: The owning and operating costs would be as follows:

Installation Cost	$10,000.00
Interest & Depreciation (15 yr. Life)	$986.00
Operating Cost	934.00
Annual Owning & Operating Cost	$ 1,920.00
Owning & Operating Cost per sq. ft.	.32
Owning & Operating Cost per Person (Based on 75 sq. ft. per Person)	24.00

On this basis the saving of $11.90 per employee would represent approximately 50 per cent of the own-

Offices Prove Value of Winter Air Conditioning

Sales arguments are found in experiences and tests conducted before and after air conditioning jobs are installed for workers

Fig. 3—Interior of air conditioned office used in test

ing and operating cost of the air conditioning system. We have assumed 75 sq. ft. per person and a payroll of $5.00 per day per person. A study of conditions in various offices indicates that as the salaries increase the floor space per employee also increases, further that the converse is also true. I have seen analysis of several installations in which the owning and operating costs were approximately $0.15 per sq. ft. per year. In such cases the reduction in lost time alone will justify the installation.

The value of the reduction in lost time may be stated in terms of the capital expenditure justified by means of the following ratio

$$\frac{J}{S} = \frac{I}{O} \text{ or } J = \frac{I}{O} \times S \text{ or } J = \$61.97$$

when I = Investment required for air conditioning.

O = Annual owning and operating cost of the air conditioning system.

S = Savings due to reduction in lost time.

J = Justified investment per employee.

The annual owning and operating cost for an air conditioning system in most cases will be slightly less than 20 per cent of the installation cost.

Up to this point we have only considered the health benefits of air conditioning. Many employers consider the field of improved efficiency to be of even greater financial importance. In most cases the efficiency factor is intangible and cannot be subjected to quantitative analysis, however, experiments indicate that the increase with air conditioning may be as much as 4 per cent.

It takes little imagination to appreciate the many ways in which improved efficiency is achieved in both summer and winter. Uncomfortable temperatures and humidities together with dirt and street noises are almost entirely eliminated.

Cigar manufacturers in Philadelphia generally recognize that humidifying equipment is essential for the production of quality cigars. However, some doubt existed as to whether it paid to install the necessary refrigeration that would enable them to maintain a uniform wet bulb temperature as well as uniform humidity.

The studies were made to try to evaluate the benefits of maintaining uniform conditions during the summer months and to determine whether the savings were sufficient to offset the installation and operating costs.

The benefits derived from this installation far exceeded expectations. Under normal summer conditions without refrigeration an average of 50 girls per day for 75 days during the summer months would become sick or indifferent to their work and would work one-half day, leaving at noon in many of the instances.

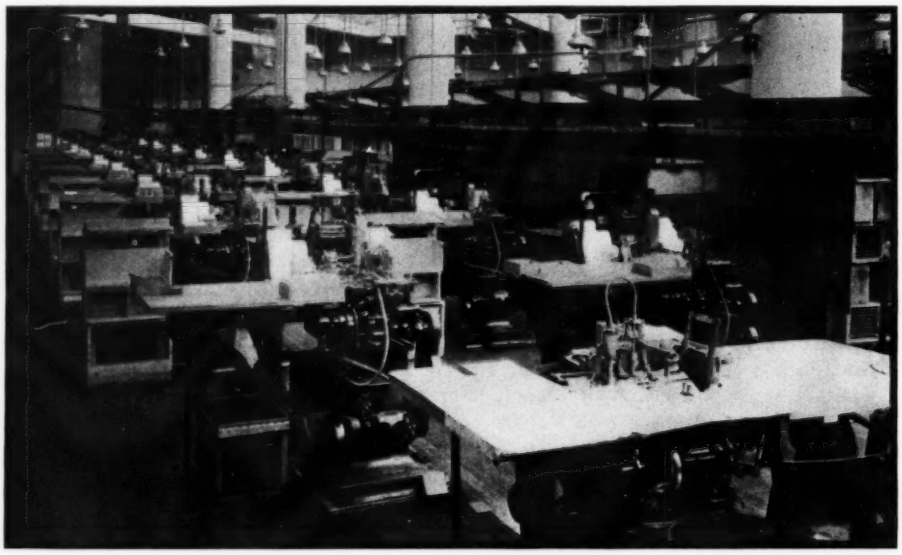


Fig. 4—"Complete air conditioning also is producing outstanding results among employees in industrial fields. This is evidenced in the plant of American Tobacco Company"

Further, due to the discomfort many girls would leave their employ and obtain work as waitresses, etc., at summer resorts.

After complete air conditioning was installed, it was found that the lost time was reduced from an average of 50 girls out one half day for 75 days to an average of 5 girls out one half day for 75 days.

Labor turnover was reduced by one hundred girls during the summer season, materially decreasing training expenses.

In addition more comfortable working conditions increased the efficiency of workers to such an extent that rejects were reduced from between 3 and 4 per cent to between 0.5 and 1 per cent.

Under normal summer conditions, due to temperature and humidity conditions in the plant, production would

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Check These Points in Your Fall Servicing Work

By H. A. Wagner

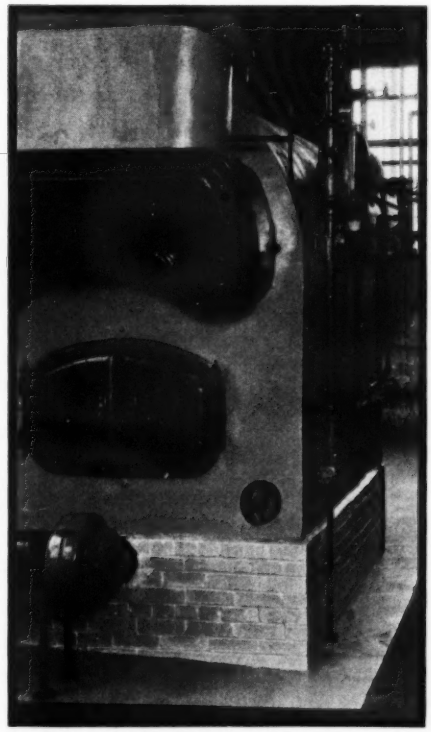

Fig. 1—Here is an indication of how automatic heating equipment fired with oil may be kept in condition for excellent heating service

HEATING systems require particular attention in early fall before the boiler is placed in operation. Since heat may be required on short notice in the fall on account of a sudden cold snap, it is advisable to make repairs to the heating system during the summer shut-down. To insure proper operation, however, some items are best left until just before heat is again required. The following items are considered to fall in this category:

If a hot-water system has been drained, the air in each radiator must be let out individually, or trouble will be experienced in securing proper circulation. An instance came to the writer's attention a short time ago where a radiator in the maid's bathroom on the second floor of a residence, which in previous years had heated perfectly, now failed to heat. The water had been drained from the system in order to make repairs to the boiler. After completion of the repairs, the system was refilled and the air valves on each radiator were opened to permit the escape of the trapped air. Although the air valve on the radiator in the maid's bathroom emitted water when tested, the radiator still would not heat. On breaking the union between the supply valve and the top connection of the radiator, a rush of air from radiator was heard. On remaking the joint, the radiator became hot in a few minutes. It was then noticed that the air valve was located about six inches from the top of the radiator, so that it was submerged in water and would not permit the escape of the air compressed in the top of the radiator as shown in Fig. 2.

Check valves, where installed in the return lines to the boiler, should be placed in good operating order. Particles of dirt under the seat of a check-valve, or corrosion of the hinge, by preventing the valve from functioning, may permit water to leave the boiler. Clean-out plugs in sediment-pockets, in the Hartford-loop, and where return lines enter the boiler, should be removed and the sediment cleaned out.

The discs of safety valves on the boiler and domestic water heater should be lifted to make certain that they are in operating condition. This is important, since a safety valve must be relied upon for relief in case excess pressure inadvertently occurs in the boiler.

Water should be drained from the boiler and replaced with fresh water up to proper level.

In addition to the care required in taking the boiler out of service in the spring and placing it in operation again in the fall, the use of oil-burners and other types of automatic fuel-burning equipment has increased the attention required for systems so equipped. Even though the equipment may be the best of its kind and subject to few troubles, the possibility of difficulty with mechanical devices is hard to eliminate. To forestall trouble, our practice is to make the following tests at least once a year to demonstrate satisfactory operation.

Depending on the individual burner, other items may require checking.

Set the room thermostat eight to ten degrees above room temperature to allow the burner to operate continuously while the controls are being checked. The thermostat itself should be inspected to make certain that the points, especially if exposed to the atmosphere, are making good electrical contact. Further, the thermostat should be checked to insure that it maintains the room temperature for which it is set, and that the temperature differential between on and off of the burner does not exceed the figure guaranteed, usually from one to two degrees Fahrenheit.

Where an emergency limit control is installed, its operation should be checked. There is an increasing tendency to provide steam boilers with an emergency limit control, either to shut off the burner in the event of low-water, or high-pressure, or both. This control is included in addition to the regular operating-pressure control to make certain that the burner will be shut down if the latter fails to operate, or if a condition of low water occurs in the boiler.

LOW WATER CAUSE OF SERVICE CALL

An emergency limit-control is of decided value, especially where persons in charge of the heating system are inexperienced with the automatic equipment involved. On a recent cold morning, a service man was sent out in response to a call that an oil burner could not be made to operate even though the room temperature was considerably below the thermostat setting. It was found that a condition of low water in the boiler had prevented the burner from operating. The boiler operator explained that, since the building had seemed somewhat slow in warming up, he had drained out part of the boiler-water in an effort to heat faster what remained. It is probable that had not the low-water cut-off been installed, several cracked sections would have resulted.

It is important also that this control be installed in the main circuit to the burner so that trouble experienced elsewhere, say in the relay, will not prevent the emergency switch from operating. The proper connection into the oil-burner circuit is shown in Fig. 3. To make certain that this control is located in the main circuit to the burner, the following procedure should be observed: (1) in the case of burners provided with cycling or program motors, tilt the mercury tube of the emergency switch to the off position; the burner should stop immediately without movement of the cycling motor; (2) where relay type controls are used, hold the motor relay in its on position and tilt the mercury tube of the emergency switch to its off position; the burner should stop; (3) where the emergency switch includes a low-water cut-off actuated by means of a float, the float chamber should be piped with a blow-down so as to enable removal of dirt and sediment from the float-chamber. On opening the blow-down valve, the sudden release of pressure usually is sufficient to empty the float chamber of water. This test will indicate whether the mercury switch and actuating mechanism are in working order.

If the emergency limit-control also contains an excess-pressure switch, it should be checked as follows: make the normal-operating-pressure switch or other equivalent limit-control, inoperative by raising its upper pressure limit above the setting for the emergency switch, or by temporarily reconnecting the control as required to allow the burner to continue operation until the excess pressure or equivalent feature of the safety switch has had an opportunity to work. When the pressure (or temperature) setting has been reached, the burner should stop.

With the burner in the normal off position, close the oil supply valve to the burner to test the operation of stackstat, protectostat or equivalent safety device. Then start the burner, which should stop after not more than 1½ to 2 minutes have elapsed. Then with the burner in the normal "on" position, again shut off the oil supply to the burner. The burner should again stop after a short period of time. If the burner is equipped with a trip-bucket and sump to protect against flame failure or failure to ignite, check the operation of the trip-bucket by moving it by hand to determine if its motion is free and also to ascertain whether the oil passage from burner to sump is free from obstruction.

Allow the steam pressure to build up enough to permit the normal-operating-pressure control to stop the burner. Aquastats on hot water boilers can be checked in a similar way by letting the temperature build up.

Check the low-pressure (or temperature) contact on the normal-operating control by letting pressure (or temperature) fall until contact is made. The burner should start if the thermostat is still in the "on" position.

Set the thermostat below room temperature, and the burner should stop.

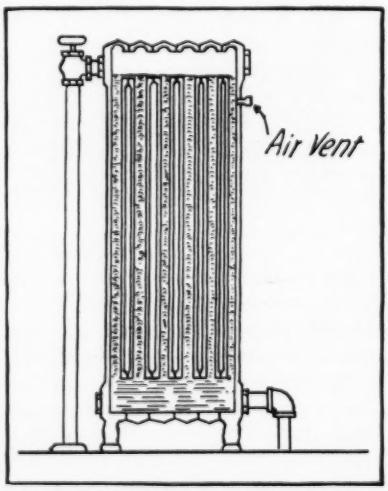

Fig. 2—This illustrates why the water in the hot water radiator would not circulate even though water ran out of the vent which is located near the radiator top.

In case relays are used, the contacts should be inspected for correct operation.

In checking a new installation, or one in which a control has been replaced or a new control added, care should be taken to see that all possible combinations of control positions function properly; this demonstrates

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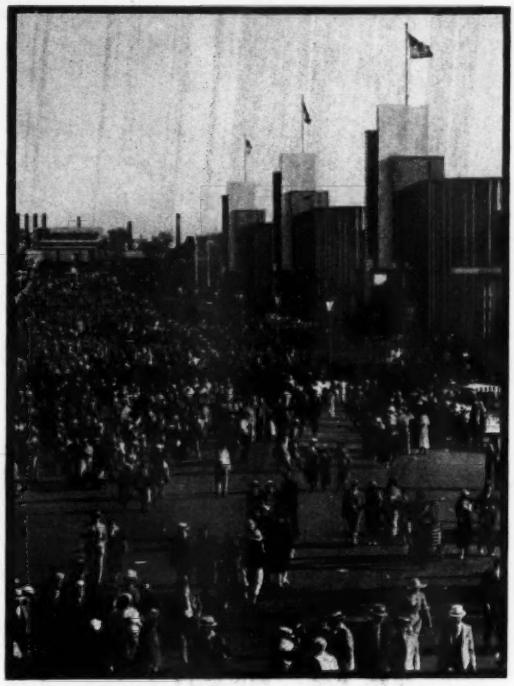

Fig. 1—Some of the crowds in attendance at the Fair

What Do Fair Crowds Think of A. H. and A. C. for Homes?

Report of inquiries at Chicago's Century of Progress indicate increase in interest

PEOPLE are interested in air conditioning. Those who are visiting A Century of Progress this summer seem to be more interested in it than they were last summer. Perhaps they are different people—perhaps they are the same people, who have learned more about air conditioning in the intervening months. Whether visitors are looking at World's Fair exhibits for the second time or not, it is probably safe to say that people generally know more about air conditioning this year than they did last, because dealers and manufacturers alike have been hammering away with advertising that is both forceful, from the sales angle, and educational.

It seems logical to conclude that people are more interested in air conditioning this year because in spite of the fact that attendance at A Century of Progress is somewhere near twenty-five per cent less than last year, inquiries on air conditioning, received at one exhibit alone, the General Electric exhibit, are approximately two hundred per cent ahead of last year.

Booth attendants say that they can almost tell from the questions asked where the inquirer lives. Mid-westerners are apparently influenced particularly by prevailing weather conditions. During hot July and August they wanted to know about cooling equipment—how quickly and simply it might be installed and how inexpensive it might be to operate. Now that cooler weather has arrived, they want to know about heating—oil fired boilers, gas fired boilers and humidifiers.

People came from the south and southeast to find out about dehumidification. They weren't so much interested in temperature reduction as in ridding the air of excess moisture. But from over in Texas and Arizona, people wanted cooling without emphasis on dehumidification.

From the east and northeast came the people whose curiosities were aroused by new heating equipment and the other things that add comfort in winter when heating is required. Californians, on the other hand, convinced that few improvements were necessary, contented themselves with trying to sell their weather to the air conditioning engineers—only those from the Imperial and San Joaquin Valleys confessing that cooling equipment would be welcome.

Roughly ten per cent of all those who stopped to inquire about air conditioning, regardless of the location of their homes, were thoroughly enough acquainted with the subject to want to consider, not one phase of it, but complete air conditioning. They knew that the term meant purification and circulation of air as well as temperature and humidity control, and they seemed to know

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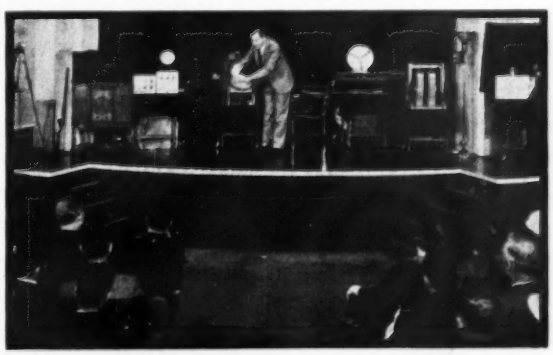
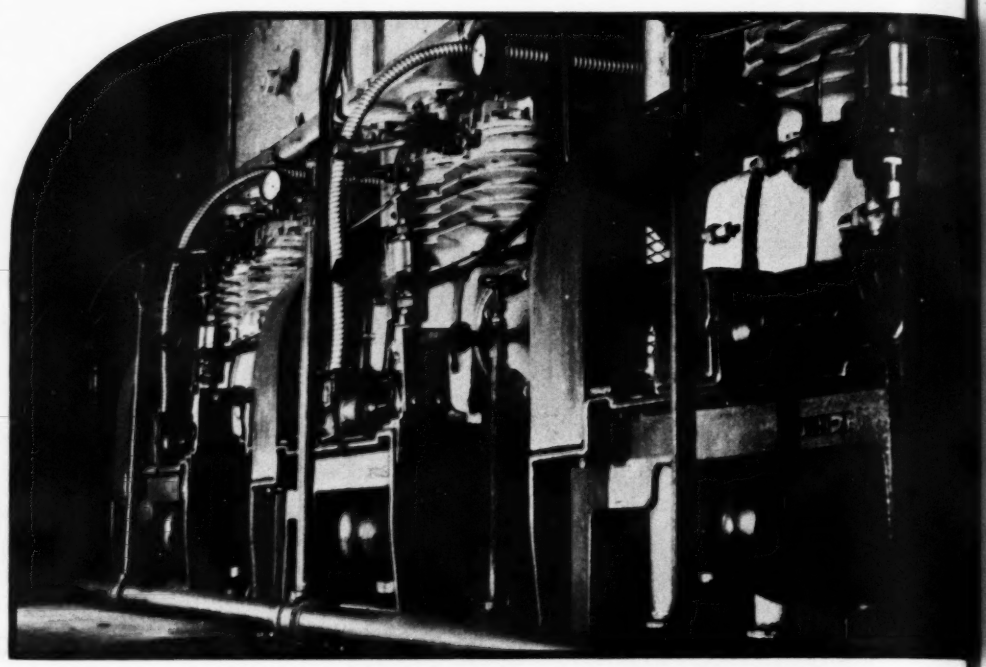


Fig. 2—One of the air conditioned theaters where summer comfort was demonstrated to many of the 1934 visitors



"I'm especially anxious to understand the operation of electric motors, for upon their good operation depends much of the proper working of automatic equipment"

What the A. H. and A. C. Know About Electrical

PAUL LUCAS, a heating contractor-dealer of Port Richmond, N. Y., was telling me of the many lines of equipment he is now handling, which included oil burners, stokers, electric refrigerators, and air conditioning systems. He remarked that everything he comes into contact with has an electric motor and he made this statement: "I wish I knew more about electricity and really understood the meaning of electrical terms. I'm sure I could do a much better job of selling my equipment. Do you suppose you could explain to me enough fundamental facts about electricity to give me some working knowledge of it?"

"But the field of electricity is so great that I would scarcely know how to begin or where to end. What, particularly, would you like to discuss?"

"I'm especially anxious to understand the operation of electric motors, for upon their good operation depends much of the proper working of all these new lines of equipment. If I really knew something about them, I would be able to buy with more discrimination and could be sure of what I was talking about when I was selling an air-conditioning system, for example."

"We might spend an evening together and I'll do what I can to help you," I said.

Mr. Lucas then invited me to go home with him for dinner as a friend had sent him some fine trout, and as I had anticipated a lonely evening, I was more than glad to accept his invitation.

"I suppose the best way to start," I remarked to my friend later, after dinner was over and we were comfortably settled in the living-room, "would be to explain as well as I can, what an electric current is. This is not easy because it is something which one cannot see, hear or smell. You know when a current is flowing in a wire by the reaction on surrounding objects, by the spark that occurs when a current carrying wire or conductor is opened, and by the heating of the wire in which the current is flowing.

"An electric current is similar to the flow of water in a pipe, (See Fig. 1) but there are certain ways in which they differ. With the electric current, if the circuit is opened the current no longer flows after the arc is gone, while there would be a leakage of water after the pipe line was opened. The flow of current differs also in that there must always be a complete connection from one source of current to the other before the current can flow.

"Electric currents are measured in amperes; the ampere representing a rate of flow. The usual symbol for current is (I). It is comparable to gallons of water per

With the increasing demand for automatic heating and air conditioning service it is becoming increasingly important for the contractor-dealer to know more about the basic principles of the main thing that makes this equipment automatic, in other words, electricity. This article is the first of a series designed to describe electrical terms and applications of electricity

Dealer Should Terms and Facts

By O. W. Thomas

minute, which also is measured as a rate of flow.

"Now let's talk about voltage. Pressure difference or differential is required to produce a flow of water in a pipe. In the same way, voltage or electrical head or differential is necessary to bring about a flow of current in a wire or other conductor. So, the voltage between two wires or two points on the same wire is the electrical pressure or head available for producing a flow of current between these two points. Voltage is measured in volts, represented by the symbol (E).

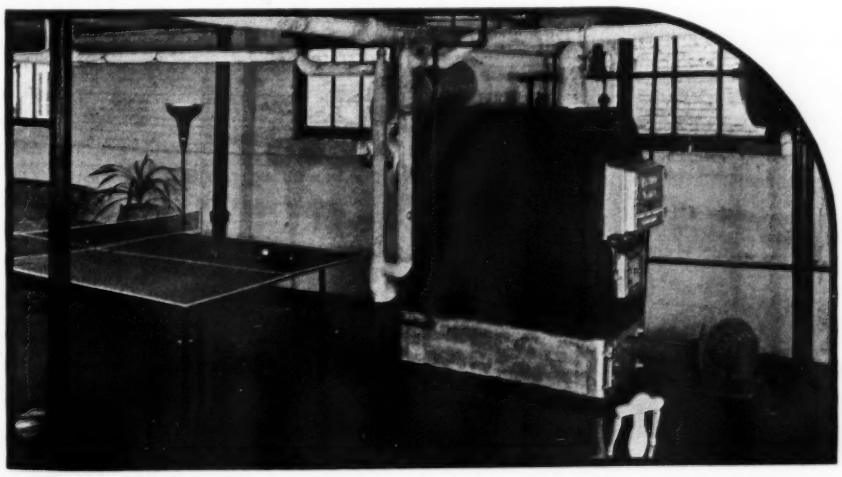
"Frictional resistance or friction head is the force that resists the flow of water in a pipe. Similarly the resistant force that tries to hold back the flow of a direct current is known as the electrical resistance, measured in ohms, represented by the symbol (R)."

"I never thought of it before, but it is easy to see that a wire would have friction just as a pipe does, except that it is called resistance," commented my friend.

"All substances will conduct electricity to a certain extent, but some things do it much better than others. Silver and copper have a comparatively low resistance and will conduct electric currents, readily, and are known as conductors. But such materials as glass, porcelain, fiber and air have a very high resistance and so greatly retard the flow of electric current and are commonly known as insulators. Please note, however, that there is no perfect insulator for all substances will conduct electricity in some degree, but the amount of electricity that a good insulator will conduct is very small indeed.

"If any appreciable current is to flow, it is necessary to have a complete path or circuit, as it is called, made up of conductors. A charge of electricity that is standing still is known as a static charge, and can not be utilized, for it is only when electricity flows that it has any utility.

"If two live wires are separated by an air gap, very little current will flow, in fact such a small amount will leak through the air gap that it can be ignored safely. If the wires are brought together, though, the resistance of the air gap will be so greatly reduced that a spark will jump between the wires. The circuit has been completed because the resistance of the air gap is reduced and a current flows in the completed circuit.



"He was telling me of the many lines of equipment he is now handling. These included oil burners, stokers, electric refrigerators, and air conditioning machines"

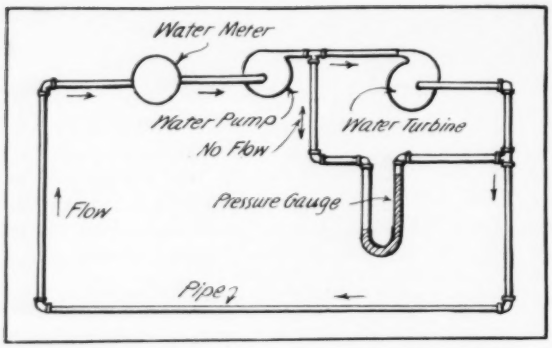
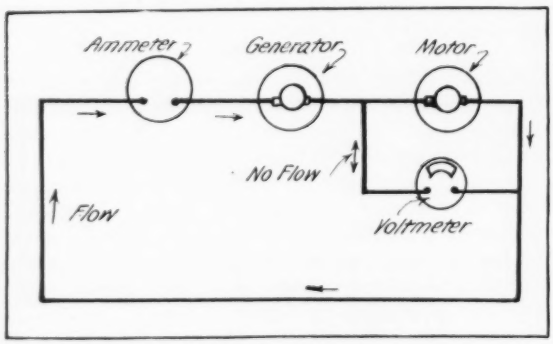


Fig. 1—Above: The flow of an electric current is similar to the flow of water in a pipe

Fig. 2—Below: The flow of current differs in that there must always be a closed circuit for it



"So much for the definitions of current, voltage, resistance, conductor, and insulator."

"I believe I understand. The current is like the gallons of water per minute flowing through a pipe, the voltage resembles water pressure, resistance is like pipe friction, the pipe is the conductor, and a closed valve is similar to an insulator."

"You are exactly right. Now let's talk about the various instruments that are used in electrical work—ammeter, voltmeter and wattmeter.

"An ammeter installed in an electrical circuit measures all the current which flows through it, just as a water meter measures the gallons of water flowing through a pipe line. In Fig. 2 is an ammeter in one of the lines connecting a motor to the main line.

When we were talking about voltage, you will remember that we compared the voltage between two wires in a circuit to the pressure differential between two parts of a pipe line. This latter is measured by connecting one side of a mercury column to one point in the line, and the other side to another point in the line, so that the gauge will then register the difference in pressure between these two points. Similarly, in measuring voltage, one side of the voltmeter is connected to one line and the other side to the other line. See Fig. 2. Because of the very high resistance of the voltmeter, practically no current flows through it; consequently there is no disturbance of the circuit when a voltmeter is connected.

A combination of an ammeter and voltmeter made to read directly the total power of the circuit is called a wattmeter. The ammeter coil has low resistance and is connected in one line. The voltmeter coil has high resistance and is connected directly across the two lines so that the current flowing through it is small and is in proportion to the voltage. These coils oppose one another, being so arranged that the reading of the instrument is proportional to the amperes times the volts at any time. A wattmeter, then, reads the true power. See Fig. 5. Most wattmeters are graduated to read in kilowatts, one kilowatt being equal to 1,000 watts. Fig. 5 also shows typical connections of an ammeter, a voltmeter, and a wattmeter in a single phase or direct current circuit. If a wattmeter reads backwards, reverse the two voltmeter connections or the two ammeter connections. This will change the deflection of the instrument needle so as to read correctly.

DIRECT CURRENT IS DISCUSSED

Now we will discuss direct current, because it is the simplest kind of current. It is so-called because the flow of current is always in the same direction. There are only three factors in a direct current circuit; the pressure or voltage (E); the rate of flow or current (I) and the resistance (R).

In any d.c. circuit there is a definite relation between these three factors which is invariable. The voltage (E) in volts is equal to the current (I) in amperes times the Resistance (R) in ohms.

$E = I \times R$

If you know the voltage and the resistance, divide the voltage (E) by the resistance (R) to obtain the current (I), $I = E/R$

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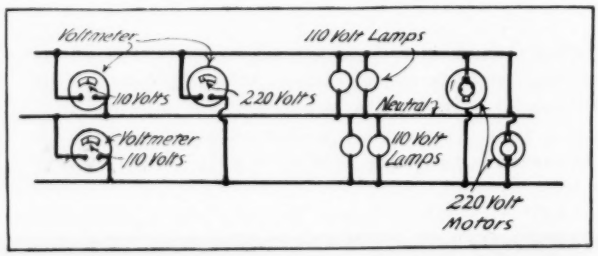
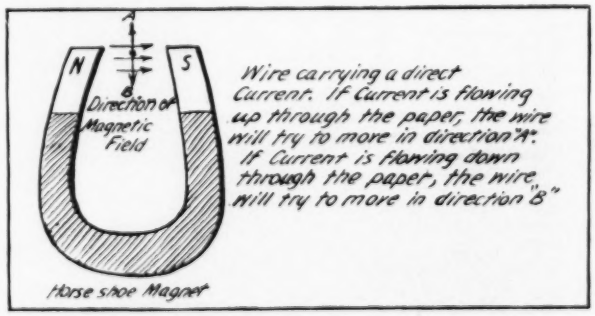


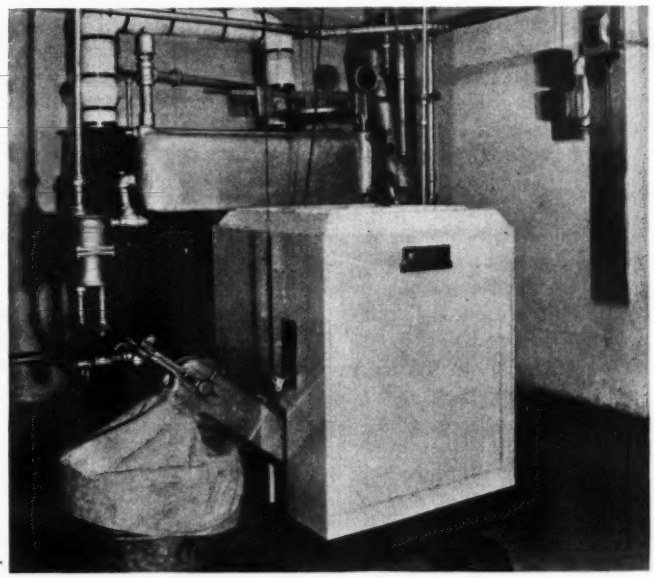
Fig. 3—Above: This is known as a three-wire direct current service

Fig. 4—Below: When the current is reversed, the pull on the wire will be reversed



How to Install Baffles in Heating Boilers

The reasons for retarding flow of gases through flue passages are discussed here



There can be no set rules for selecting the proper baffle for every type boiler because of construction and fire travel differences

THE subject of baffling is important from the standpoint of obtaining all of the heat practically possible from the hot gases generated in automatic heating equipment.

We should familiarize ourselves with the process of heat transmission under different firing conditions. We will then realize the importance of proper blocking and baffling which greatly increases the efficiency of the installation. This often spells the difference between success and failure with automatic firing.

Heat may be transmitted from one body or substance to another having a lower temperature in any one of three ways; by radiation, by conduction, or by convection.

By way of radiation, heat, being subject to the same physical laws as light, is transmitted or flows from its source through space in straight lines in all directions.

When heat passes from the warmer of two contacting bodies into the other cooler one it is being transmitted by conduction.

When water or air is brought in contact with a body of higher temperature some of the heat is transmitted to the surrounding water or air. Upon becoming warmer both water and air expand and thus become lighter per unit of volume and so an upward current or circulation is produced. Heat so transferred is transmitted by convection. The heat actually leaves the hot body by conduction from its surface to the fluid in contact with it. The essential characteristic of the process of convection is the continuous renewal of the fluid layer at the point of contact. It is through this medium of heat transfer, in conjunction with the other two, that water is heated in boilers and air in furnaces, regardless of the method of firing.

Both with hand firing and automatic firing all three of the above methods of heat transmission are utilized, but not to the same extent in each case.

A boiler built for hand firing has a grate intended to hold a fuel bed and the combustion chamber is designed to receive the radiant heat from the fuel bed. Usually, small heating boilers are fired at infrequent intervals and more heat is transmitted to the water by the fire surfaces.

The heating surfaces of a boiler are those which have water on one side and hot gases on the other. In order that a boiler may be efficient the ratio of heating surface to grate area should be large, but in practice the ratio is limited by such factors as the cost of manufacture and friction to the flue gases.

This article is based on excerpts taken from a talk presented by Fred L. Hilder at the seventh annual sales convention of the Electric Furnace-Man, Inc., New York City.

When an automatic stoker is installed in these boilers, there is a smaller fuel bed giving off radiant heat and the greater portion of the heat transfer takes place by contact between the combustion gases and heating surfaces. Consequently, the amount of heat absorbing surface, especially in the form of convection surface, should be as generous as possible. This is accomplished with proper baffling, which lengthens the fire travel and also increases the heat transmission by radiation.

The introduction of a stoker in a boiler increases the air pressure three to four times over that required for hand firing with a proportionate increase in the velocity of the combustion gases. Proper baffling and blocking of the boiler will retard the velocity of the gases so that the boiler heating surfaces will be able to absorb the heat, thus preventing excessive stack losses.

When exceptionally poor draft is encountered, it is not always safe to assume that the forced draft of an automatic stoker will remedy the trouble. The deficiencies of the stack or chimney should be corrected first.

HOW MUCH BAFFLE NEEDED

A balanced draft or a slight minus pressure in the boiler will determine the amount of blocking permissible. Installation of the correct size baffle and proper blocking in a boiler has resulted in increased efficiencies up to twenty per cent and practically every boiler should be baffled, if possible. There are a few types of boilers that a baffle will not improve but they represent a very small percentage of the total.

There can be no set rules for selecting the proper baffle for every type boiler, because of differences in construction and fire travel, but general rules may be followed.

When a stoker is installed in a round boiler, it is customary to use a round refractory baffle above the burner to radiate heat to the lower portion of the water legs of the boiler. When hand-fired, this portion of the boiler receives its heat by conduction, but with the fire on a burner some distance away from it the heat exchange in that manner is reduced. It is regained and increased through the installation of proper baffles.

In determining the proper size baffle to install in a round boiler, we ordinarily choose one of a diameter that will allow clearance of three or four inches between it and the inside of the boiler. The baffle should be hung nine to ten inches above the burner top of small burners and fourteen inches above burners of more than twenty-five pounds per hour coal feed.

If there is less than the same distance between the baffle and crown sheet of a boiler than there is between the burner and baffle, the next size smaller baffle is used. Too large a baffle hung close to the crown sheet of a boiler does not allow the gases to pass over it and creates a comparatively cold spot at that point.

If there is a single large hole in the center of the crown sheet, we recommend that a pipe of nearly the same diameter be inserted in the hole over the baffle. This creates a down-draft, which is desirable.

Round boilers having a number of small holes in the crown sheet should be down-drafted also, with an equal number of iron tubes inserted and projecting down to within five or six inches of the burner top. In this instance, no other baffle is used.

Whenever a machine is pitted, the baffle should be hung the same distance above the grate lugs as it would ordinarily be above the burner. If hung too low, excessive heat is deflected to the sides of the ash pit. On all pitted jobs the inside of the boiler base should be well insulated.

It is better to hang a baffle closer to the rear of the boiler than close to the fire door. If too close to the fire door, it will force gas out through the door cracks at almost all feeds and necessitates covering the inside of the door with insulation to prevent the escape of the excessive radiated heat.

The openings in the intermediate section may be partially covered with fire brick splits to retard the gases, but not enough to create a back pressure.

Direct water heaters should be located not less than eight inches above the top of burner, and off to one side rather than over the center, in which position the heater is subject to excessive heat.

In baffling a warm air furnace, the same rules for choosing the proper size baffle as outlined for round boilers may be applied. It is not as necessary to adhere to the same relative location of the baffle as there is no water leg to contend with. It is also desirable to provide ample space for starting a fire, because of the long reach from the fire door on most furnaces. Therefore, the baffle is usually hung as high as possible in the furnace combustion chamber with the required side clearance.

Warm air furnaces require blocking only in the upper radiator ring section, and may be blocked by inserting one or two fire bricks, both at the point where the gases first enter the radiator and at the damper.

SEAL CRACKS IN BOILER JOINTS

It is important that all cracks be well sealed with boiler cement, in the combustion chamber, the fire pot and at the joints where the casing is fitted to the castings, before blocking and balancing the draft.

Cracks may have been present for a long period under hand firing, never causing any discomfort from ash, dust or gas because of low draft pressure. But with forced draft firing, a slight back pressure from excessive blocking will drive the gas and dust through these cracks.

The proper baffling for square or sectional boilers is dependent upon the construction of same, the direction of fire travel and the location of the burner.

In most cases where the first pass from the combustion chamber is in the rear of the boiler a vertical curtain baffle is installed in the rear.

This causes a downward travel of the gases, bringing them in contact with the lower portion of the side and rear water legs before leaving the combustion chamber. Some clearance is provided between the sides and top of the baffle and the boiler to permit circulation of the gases past those points.

This type baffle is constructed of ¼-in. to 5/16-in. boiler plate, in two sections bolted together after insertion in the boiler, and is supported with either baffle chain or pipe.

A horizontal refractory baffle hung over the burner is used occasionally in the above-mentioned boilers with

(Continued on Page 112)

How Comfort Is Measured by Effective Temperatures

When a customer tells you that in winter the thermometer registers 72 deg. Fahr. but still he is cold, check the effective temperature

By Harold L. Alt

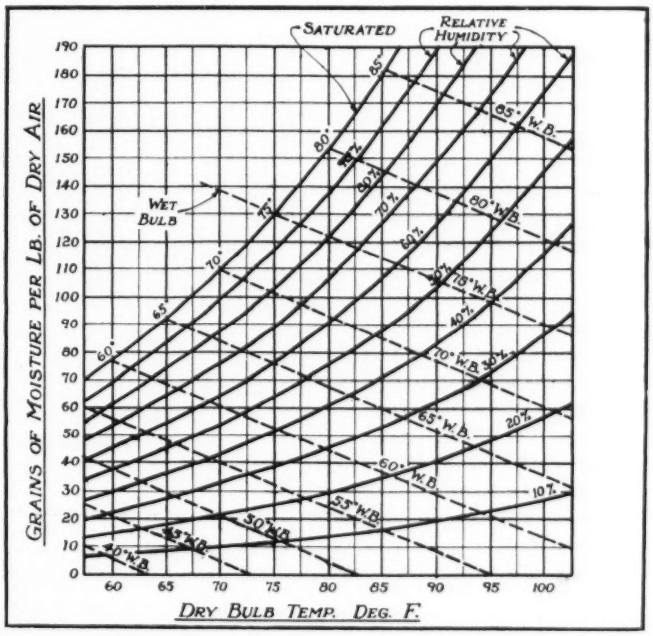


Fig. 1—One of the most interesting things in air conditioning is the part played in it by the wet bulb temperature

In all air conditioning work the temperature of the air may be considered as the most important characteristic with that of humidity coming a close second; there are certain temperatures both too high and too low at which the body cannot be comfortable just as there are certain humidities also too high and too low at which comfort cannot be secured at any temperature and by comfort is meant not only a sensation of comfort but also a condition desirable for the physical needs as well. It has already been explained how the moisture in the air is termed humidity and how there are two kinds of humidity—relative and absolute. Now let the matter of temperature be considered.

There are three different kinds of temperature used in air conditioning all of which are expressed in degree Fahrenheit on the Fahrenheit thermometer scale; they consist of temperatures on the ordinary thermometer commonly termed a "dry bulb," temperatures on the same thermometer with the bulb covered with a piece of damp wicking and whirled around as a sling psychrometer the resultant temperature secured being termed the "wet bulb," and the third is what is known as "effective temperature" or the sensation produced on the body by different combinations of temperature and humidity. When simply the term of *temperature* is used, it is assumed to mean the *dry bulb* temperature; but if *wet bulb temperature*, or *wet bulb*, is used, it is assumed to mean the temperature secured on the wet bulb of a *sling psychrometer* and, if *effective temperature* or *effective* is used, it means the temperature resulting on the effective temperature chart from the

The two psychrometric charts reproduced in this article are taken from material developed by the American Society of Heating and Ventilating Engineers. Likewise, credit is hereby extended to the Society for the charts reproduced in the two preceding chapters of this series appearing respectively in the August and September issues.

combination of dry bulb and wet bulb or relative humidity which may exist.

The *dew point* is such a temperature on the dry bulb thermometer at which a given air of a certain temperature and humidity will become saturated and begin to precipitate the moisture when reduced in temperature to that point. For example, what is the dew point of 70 deg. Fahr. air with 50 per cent relative humidity? The number of grains of moisture in a pound of 70 deg. Fahr. air saturated is 110.5 so that if the air is 50 per cent saturated) or has 50 per cent relative humidity, which is the same thing) it must contain 110.5 grains x 50 per cent or 55.2 grains per pound. Air at 50 deg. Fahr. has 53.5 grains per pound when saturated and 55 deg. Fahr. air has 64.40 grains when saturated.

EXAMPLE EXPLAINS DEW POINT

This plainly indicates, that if no moisture is added or subtracted from the 70 deg. Fahr. air at 50 per cent relative humidity and if the temperature of this air gradually is lowered, somewhere between the temperatures of 55 deg. Fahr. and 50 deg. Fahr. the air no longer can contain the 55.2 grains actually in the air and that it must begin to precipitate some of the moisture before it reaches 50 deg. Fahr. owing to the fact that at 50 deg. Fahr. the air cannot carry over 53.5 grains. As the amount contained (55.2 grains) is closer to 53.5 grains (saturated capacity at 50 deg. Fahr.) than it is to 64.40 grains (saturated capacity at 55 deg. Fahr.) the temperature at which precipitation will begin and at which the air will become saturated will be closer to 50 deg. Fahr. than it will be to 55 deg. Fahr., say at 51 or 52 deg. Fahr. Reference to tables showing the grains saturated for each degree of temperature indicate that this will be a fraction of a degree under 51 deg. Fahr.

One of the most interesting things in air conditioning is the part which is played by the wet bulb temperature; the wet bulb temperature is that temperature which is secured when a piece of wet wicking is placed on the bulb of an ordinary thermometer and the thermometer is whirled around rapidly in the air until the mercury has fallen as far as it will go. This reading is the wet bulb temperature and the amount that the mercury falls from the ordinary dry bulb reading is termed the wet bulb "depression." These depressions may be plotted on the psychrometric chart as shown in Fig. 4. Thus, if the dry bulb (or ordinary thermometer reading) showed 70 deg. Fahr. and the wet bulb when slung around in a sling psychrometer did not go below 60 deg. Fahr. then the wet bulb depression is 70 deg. Fahr.—60 deg. Fahr. or 10 deg. Fahr. Referring to Fig. 4 and following up the vertical line from 70 deg. Fahr. on the dry bulb scale along the bottom of the chart until it intersects with the wet bulb line of 60 deg. Fahr. (the wet bulb lines are the diagonal broken lines), it is found that the intersection lies almost half way between the curve for 60 per cent and the curve for 50 per cent showing that the relative humidity is a little less than 55 per cent—say between 53 per cent and 54 per cent.

CURVES ARE MADE SIMPLE

At one time it was thought that the wet bulb temperature was the real measure of comfort; in other words that it represented "effective temperature." Careful experiment has shown this not to be the case although the effective temperatures approximate the wet bulb more closely than they do the dry bulb in many instances. More of this wet bulb temperature will be met with when the consideration of the cooling done by evaporation in air washers is discussed, as will be done very shortly.

In order not to confuse the reader at the beginning, the curves for humidity, effective temperature and dry bulb have been shown and explained on separate charts but all of these charts may be combined into a single chart showing all of these relations at one and the same time and in relation to each other. Such a combination chart is given in Fig. 2 and it is in no way different from the charts already presented except that all of the lines on all of the charts are indicated and such a combination of relations is termed the "psychrometric chart." There are other forms of the psychrometric chart but the information given is the same and simply is altered in the manner of presentation.

Strictly speaking the psychrometric chart includes simply the dry bulb, wet bulb and relative humidity percentages but other functions have been added to the basic ones such as effective temperature, comfort zones, comfort lines, and so on. Most of the added lines are unstable in character; that is they are correct for certain assumed conditions but will vary if the air motion

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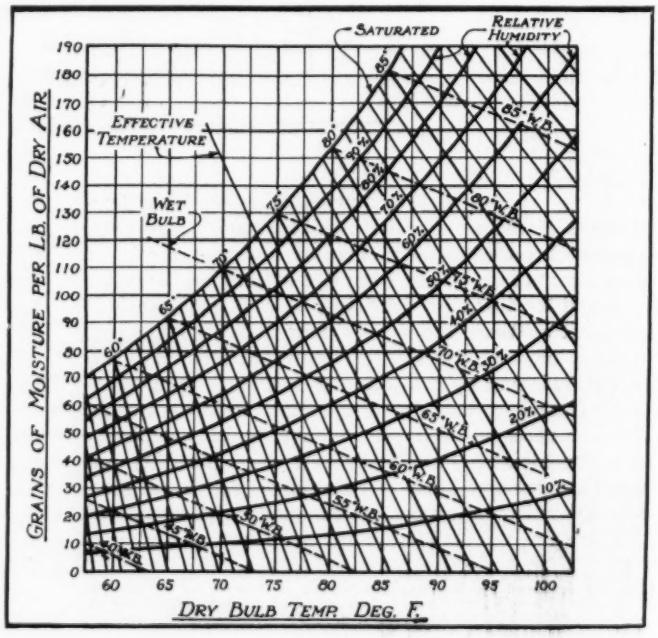
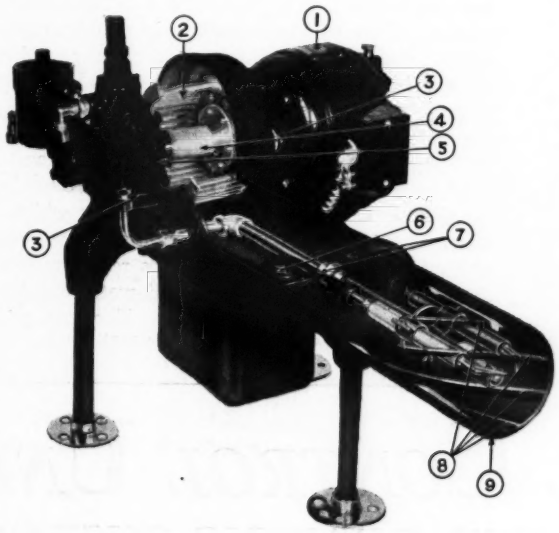


Fig. 2—In this chart, effective temperatures are plotted against both the wet and dry bulb temperature readings

The Outstanding Oil Burner Development for 1935



The BURNER of TOMORROW

SILENT GLOW MODEL 800

Flexible Drive (4) together with rubber motor mountings (3) eliminate vibration.

"Progressive Rotation," produced by rifled air tube (8) provides more efficient combustion with absolute quiet.

Radio interference eliminator, plus short (6 inch) high tension leads (7) prevent radio interference, while streamlined terminals (6) further insure quietness.

Was Perfected by Silent Glow in 1934

Picture a gun-type burner in which there are no turbulators! A burner that holds its flame—without constant ignition or the use of refractory materials — even when operated in the open. A burner a third smaller than ordinary units of equal capacity.

Consider these three features alone—and you will agree with hundreds of heating authorities that Silent Glow's newly perfected "Progressive Rotation" is the outstanding development for next year—and years to come.

Let's see just what "Progressive Rotation" is and does. Old-fashioned gun-type burners depend on turbulators to mix the air with the oil. But turbulators—by their very nature—deflect the air at right angles, causing it to "splash" in all directions. The result is noisy operation—a wavering flame—and often incomplete combustion.

With "Progressive Rotation," on the other hand, there are no turbulators. Instead the air-tube is rifled. This causes the air to be whirled along in smooth, rhythmic circles. When co-mingled with the atomized oil, the progressive rotating action of the air creates a clean, bushy flame that remains suspended without the use of constant ignition or combustion walls. More heat is obtained per gallon of oil —and with an amazing absence of noise.

Dealers who realize the extra profit possibilities of handling a product ahead of the times are invited to write for full facts on this revolutionary development.

Silent Glow Oil Burner Corp.

Factory: Hartford, Conn., Branches: Boston, Chicago

Alt—

(Continued from Page 90)

is altered. The dry bulb, wet bulb and relative humidity curves are stable however, and will not vary with air motion but such items as effective temperature, comfort zones, comfort lines, etc., will vary materially with the air motion. It seems cooler in a breeze but the thermometer does not change its dry bulb or wet bulb reading and, therefore, the relative humidity does not alter.

The temperature of the air in conditioning work is raised by means of heaters of the blast type suitable for heating large volumes of air flowing across the heater, such heaters usually being of the cast iron, or extended copper fin, type and supplied with steam—or sometimes with hot water—so as to give the desired temperature rise in the air. The reader has now reached a point where it is possible to understand exactly why a rise in air temperature will not affect the absolute humidity but does affect the relative humidity. Suppose, for example, that 70 deg. Fahr. with 50 per cent relative humidity is heated to 80 deg. Fahr.; how is the absolute and relative humidity affected?

When the air at 70 deg. Fahr. and 50 per cent relative has an absolute humidity of 110.5 grains it actually contains 110.5 grains x 50 per cent or 55.2 grains of moisture. Now, if this air is heated to 80 deg. Fahr. and no moisture is added in the process, the absolute humidity will be unchanged; in other words, there still will be 55.2 grains per pound of air in the air. But, air at 80 deg. Fahr. can contain—if saturated—155.8 grains so that the percentage of saturation (or relative humidity which is the same thing) at 80 deg. Fahr. will be 55.2 grains/155.8 grains or 35 per cent plus. Thus, without changing the amount of moisture actually in a pound of air—and, therefore, not having changed the absolute humidity—the relative humidity has been altered from 50 per cent to 35 per cent, simply by a change in temperature.

THREE METHODS TO CONSIDER

In reducing the temperature of the air, it is necessary to consider three methods which may be termed *surface cooling* (such as occurs in the common air conditioning unit where the air is drawn across cooling a surface in a manner similar to the way it is drawn across heating surface when the temperature is raised), *evaporative cooling* by means of which air may be cooled down to a minimum of the wet bulb temperature by being passed through a water spray at normal temperature and with the water constantly recirculated (such as occurs in the ordinary air washer with recirculated water and no artificial cooling of the water) and *contact cooling* by bringing the air into contact with cold water which has the water temperature constantly maintained at some point either by artificial means (such as refrigeration) or by the procuring of a supply of cold water (such as from the street mains or deep well). The last process of

Continued on Page 119)

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Automatic Heat and Air Conditioning Questions

QUESTION ON PREHEATER FOR BOILER

To the Editor:

We would like to take advantage of your engineering service in connection with a peculiar problem which we have encountered. We have a conventional one-pipe steam system with dry returns and having branches to the two sides of the building. The return connections are as shown in Fig. 1 and the complaint is that the radiators on one side (A) do not heat as quickly or retain the heat as long as do the radiators on the opposite (B) side. There is no indication of any fault in the piping or the pitch.

The owner, however, has had installed on it a device for pre-heating the air—which is indicated in Fig. 1—and you will note that this is a water jacketed cylinder supplied by water from the water jacket of the boiler so as to heat the air entering the combustion chamber. It is our idea that a small quantity of water in the pre-heating apparatus is heated to the boiling point much more rapidly than the water in the boiler and thereby produces a surging immediately below the water line and adjacent to the main steam outlets. There also is an indirect heater attached to this boiler in the conventional manner, although this is not shown in the sketch. As this has developed into a controversy as to whether the heating system is defective or not we would like your opinion as to whether the pre-heating device could be the cause of the trouble.

New Jersey. G. W. T.

To the Reader:

We are not inclined to think that the pre-heating apparatus has introduced any element in the system which would affect the operation of the radiators—at least not from your description of the device. The purpose of all such devices is to pre-heat the air before it enters the combustion chamber and the introduction of water jacketed cylinders in the combustion or fuel space is a rather novel method of obtaining this result. Just how much "turbulence" this would produce under the water line is difficult to state as this would depend on the relative heating surface exposed to the fire and the size of supply and discharge pipes from the pre-heater; for example, if the pre-heater circulation pipes are so small that steam is produced in the pre-heater and forces its way up through the discharge pipe, the turbulence produced might be considerable but if there simply is a circulation in the normal manner the turbulence would not be sufficient to cause any trouble.

We do not believe that your sketch of the boiler is quite right in showing the top of the combustion space as being above the water line; if this is correct, then the steam space is greatly restricted, the area of the water for steam separation is only a ring around the outside and the top of the combustion space is not water cooled, all of which is contrary to usual boiler practice. On the other hand if the top of the combustion space is below the water line as we believe it is, then the turbulence—even if existing—should affect both sides of the system alike.

It must be admitted that a slowness in heating up of the side of the system (which you state is the shorter side) is caused by it requiring a greater length of time to blow out the air on this side than on the other. From this it seems logical to suppose that your air relief is faulty on the short side, or at least is much slower on

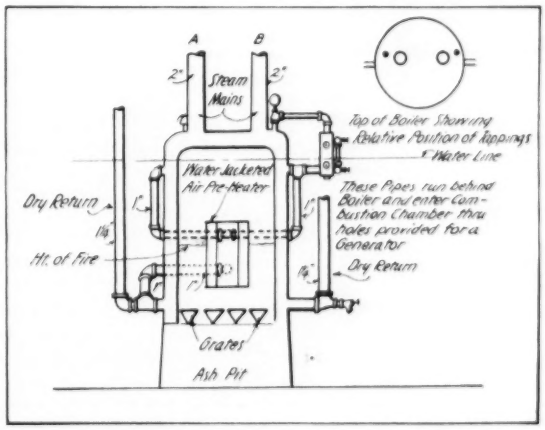
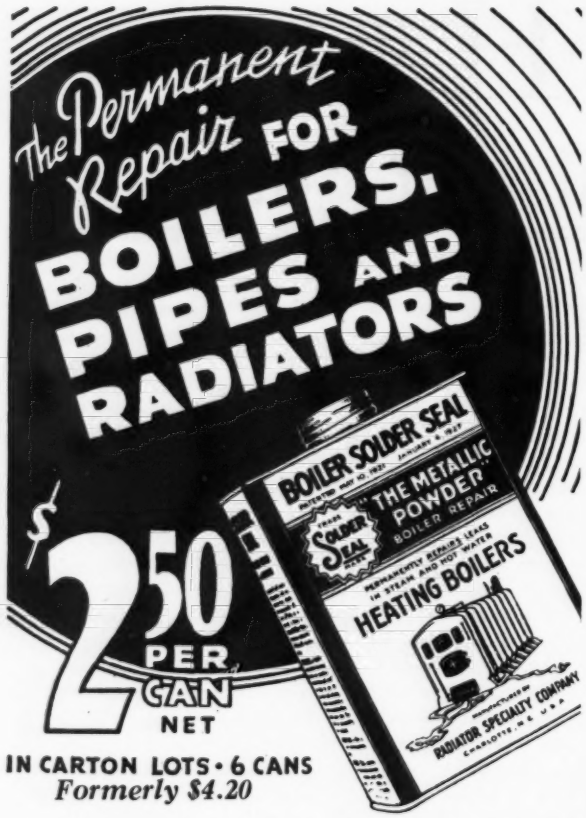


Fig. 1

the short side than it is on the long side. If this retarding of the air expulsion on the short side is the result of turbulence or surging in the boiler it could only be on account of such large quantities of water being carried over into the main on the short side as to interfere with the steam entering the main. We do not believe that such a quantity could be carried over without producing water hammer and noise of which you would be well aware.

If, however, the trouble is with the air not getting out of the system freely it may be caused by the air



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valves on the short side being closed down more than on the long side and thus requiring a greater time for the air to work out; it also may be caused by the air valve on the dry return not working freely. It is most important to have an air valve where the return main drops down and becomes wet to relieve the air caught between the advancing steam and the water. Possibly the substitution of a quick vent valve at this point might relieve you of all your troubles.

All of these thoughts of course are long distance ideas; we have not seen the system and you have sent no sketch of the piping with the method of air venting indicated. Why not disconnect the preheater from the boiler pipe and connect a cold water line into the bottom pipe allowing the water to flow through and out of the top pipe into a hose to a drain and then try raising steam to see if you get better results? But we suggest testing your air venting first possibly by removing your air valve where the return drops down to become wet and leaving this open to see if the short side fills more quickly; if so this air valve is too small and should be replaced by a larger valve or two valves.

TABLE FOR ESTIMATING FUEL

To the Editor:

I am looking for information on the following four points: Can you furnish me with a chart or table for estimating the coal consumption for heating in buildings ranging from residential to larger apartments and industrial plants? The weather conditions are those in a climate having about 5,000 degree days per heating season.

Can you also tell me how to estimate the effect of an unbalanced heating system? That is, the effect of too much radiation or too little, and that of an oversized and undersized boiler?

What fuel saving is made by reducing the temperature at night?

And last, do you recommend a thermostatic control of a stoker under the boiler for apartments larger than, say, 100,000 cubic feet and having more than four apartments?

Ohio. G. W. C.

To the Reader:

The amount of coal used by a building varies considerably with the Btu. content of the coal, the method of firing, the heating system in use, whether thermostatic control is employed or not, the number of hours per day and the number of days per week that the building has heat on, etc., etc. In spite of all of these variations, an approximation for the average building has been found by the district heating companies to be in the neighborhood of 500 lb., of steam per annum for each square foot of radiation installed or its equivalent. If it is assumed that the ordinary building runs about 1.25 sq. ft., of E.d.r. per 100 cubic feet of building and that the seasonal average evaporative rate is about 7 lb., of water per pound of coal, it may be worked out as to what the probable coal consumption will approximate.

For example, taking a building with 1,000 000 cu. ft., the radiation should approximate $(1{,}000{,}000/100) \times 1.25$ or 12,500 sq. ft., E.d.r. and the number of pounds of

steam used per season will be in the neighborhood of
12,500 sq. ft. × 500 lb., or 6,250,000 lb.
which, at 7 lb., evaporative rate will require the burning of
6,250,000 lb. / 7 lb., or 892,850 lb., of coal
and, with 2,000 lb., of coal to a ton, this gives
892,850 lb., / 2,000 lb., or 446 tons.

The chart shown in Fig. 1 has been laid out on this basis, the building cubage being shown along the bottom *in thousands* of cubic feet and the tons of coal on the vertical scale on the left hand side. A leader line is shown for the above example, this line beginning on the

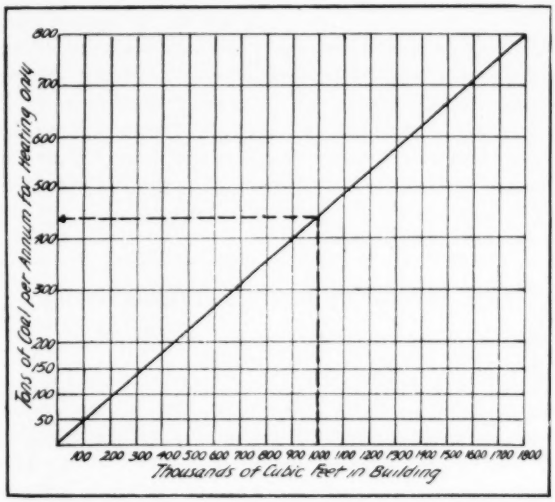


Fig. 2

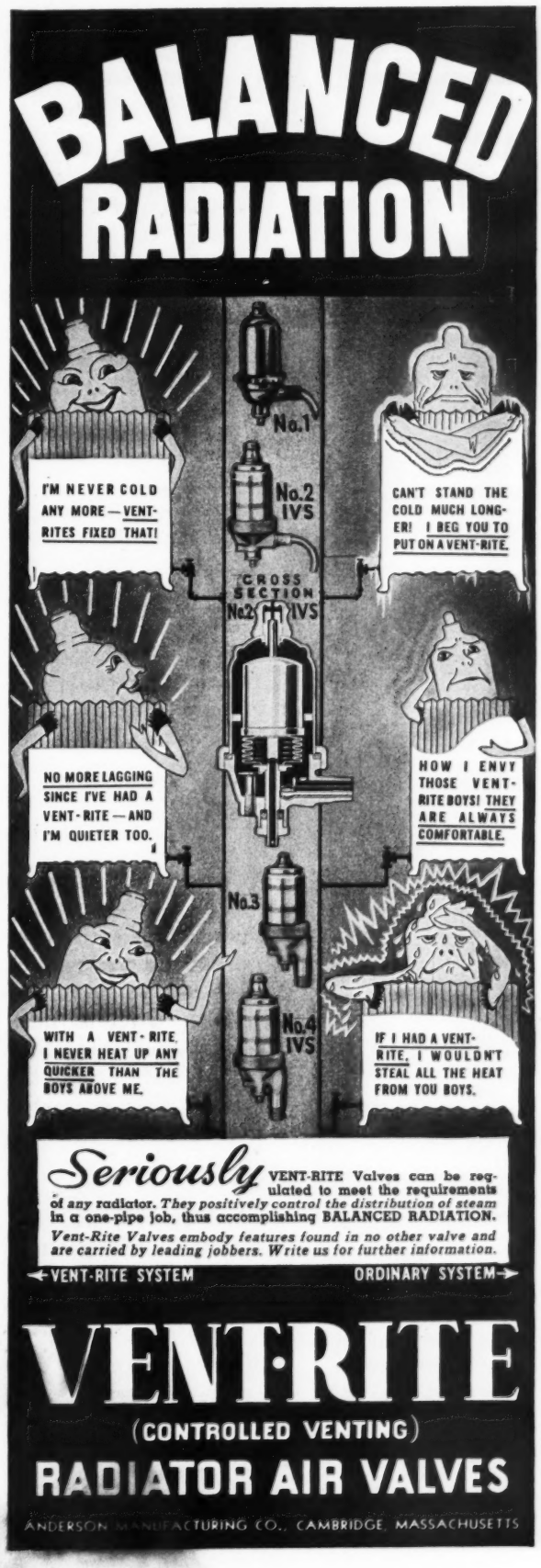
bottom scale at "1,000" the number of thousands of cubic feet in the building and proceeding upward until the diagonal line is intersected and on the scale at the left opposite the intersection will be found the amount of 445 tons as the quantity of coal likely to be used. If the cubage of the building should exceed the amounts shown on the chart divide the actual cubage by two, read off the amount of coal for half the building (or half the cubage) and double this amount of coal to obtain the amount for the whole building.

To bring this chart nearer to actual conditions, the amounts of coal obtained should be multiplied by the following factors:

For industrial buildings with no night, Sunday or holiday operation	0.65
For office buildings with no night use and closed on Sundays and holidays	0.80
For office buildings using steam at night	1.00
For semi-detached residences	1.10
For apartment houses	1.30
For hotels	1.60

For schools figure about 6 tons per class room or its equivalent class room space in the form of other rooms.

As to the second question, the result of under-radiatored rooms would be inability to hold the necessary inside temperatures when the outside temperature is at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RADIATION
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No.2 IVS
CROSS SECTION No.2 IVS
No.3
No.4 IVS
I'M NEVER COLD ANY MORE — VENT-RITES FIXED THAT!
CAN'T STAND THE COLD MUCH LONGER! I BEG YOU TO PUT ON A VENT-RITE.
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HOW I ENVY THOSE VENT-RITE BOYS! THEY ARE ALWAYS COMFORTABLE.
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Seriously VENT-RITE Valves can be regulated to meet the requirements of any radiator. They positively control the distribution of steam in a one-pipe job, thus accomplishing BALANCED RADIATION.
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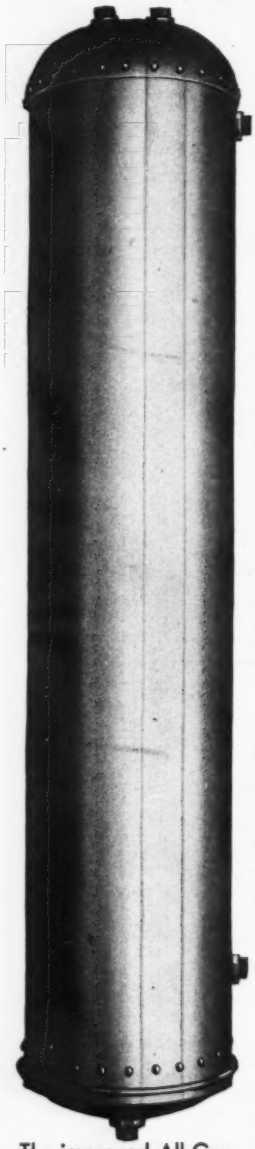

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The Better Housing Campaign provides unlimited opportunities for increasing your range boiler sales.

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When laying out modernization jobs insure complete satisfaction to your customer and yourself for many years to come, by specifying G&C all quality, all copper range boilers. The boilers with the twenty year guarantee and no after regrets.

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the lowest, and slightly less coal would be used. In over-radiatored rooms the effect is to overheat and this means an increase in the amount of coal used due to wastage from excessive temperatures being maintained. A whole building which is over-radiatored consistently throughout might not result in any extra coal being required if overheating can be avoided by thermostatic control or close manual operation.

A boiler which is too large would produce very little difference in coal consumption especially if it were well covered; the only difference would be a slightly greater surface exposed on the boiler from which heat could radiate into the boiler room and this might be more than offset by the added heating surface in the boiler to absorb more heat from the gases of combustion. A boiler which is too small does have a loss of efficiency in extreme weather due to the forcing of the fire and the higher temperature of the flue gases going out of the boiler which will carry away more heat. Extreme weather constitutes such a small proportion of the heating season that we are doubtful if this loss would amount to as much as 5 per cent.

FUEL SAVINGS BY REDUCED TEMPERATURES

For your third question, we can answer this theoretically but each building will vary somewhat from the theoretical figures. With 5,000 degree days per season, the outside average temperature is usually somewhere around 40 deg. Fahr. and the minimum around zero. This means that if 70 deg. Fahr. heat were kept on 24 hours per day the average load would be (70 — 40)/70 or 3/7 which is 43 per cent roughly. If the heat is reduced so as to carry only 60 deg. Fahr., then the average load is (60—40)/70 or 29 per cent roughly. Therefore the saving when operating at 60 deg. Fahr. against operating at 70 deg. Fahr. would be

40 per cent — 29 per cent or 14 per cent

but, as you cannot run at 60 deg. Fahr. except during the night, this saving will be only a proportion of 14 per cent based on the number of hours out of the 24 that you can run at 60 deg. Fahr.

This gives the following:

8 hrs., at 60 deg. Fahr. equals 8/24 of 14% or 4⅔%
10 hrs., at 60 deg. Fahr. equals 10/24 of 14% or 5⅚%
12 hrs., at 60 deg. Fahr. equals 12/24 of 14% or 7 %
14 hrs., at 60 deg. Fahr. equals 14/24 of 14% or 8⅙%
16 hrs., at 60 deg. Fahr. equals 16/24 or 14% or 9⅓%
18 hrs., at 60 deg. Fahr. equals 18/24 of 14% or 10½%

Some slight reduction of the above will occur through the necessity of "forcing" the boiler in the morning to bring the building back to temperature and this might be assumed as about 1 per cent.

As far as your last question is concerned it has been found that thermostatic control normally will produce economies in any size of building due to the prevention of over-heating but this will mean more in dollars and cents of saving in a large installation than it will in a smaller one. Therefore, the amount of investment in thermostatic control can be made much greater in a large installation than in a small one and still show to be economically sound.

Air Conditioning Retail Outlets Discussed at San Francisco Meeting

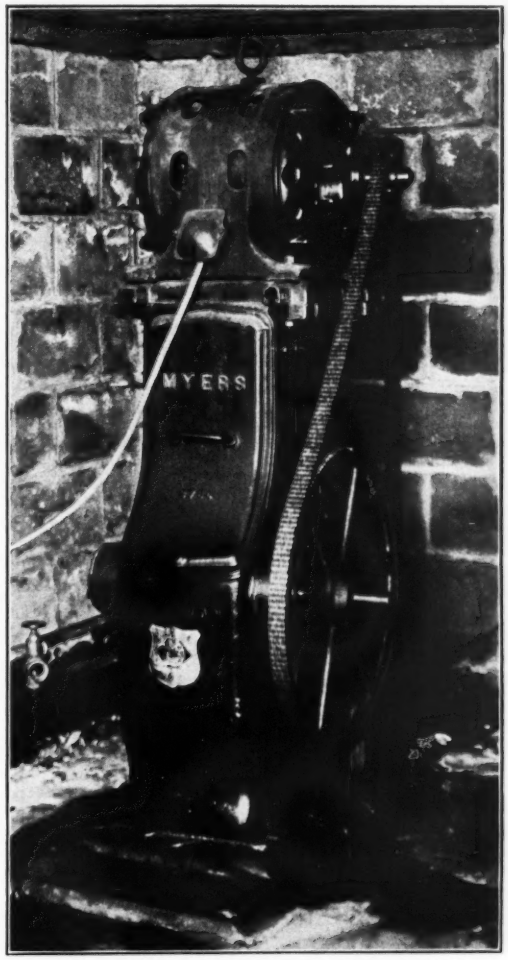
The monthly meeting of the Air Conditioning Society of San Francisco, held at Marquard's Cafe, on September 18th, was featured by a talk by J. A. Hill, chief of the A. C. Sales Department of the Pacific Gas and Electric Company, who reviewed recent accomplishments in the industry.

Going first into mechanical advances, Mr. Hill spoke of dehumidification and cooling; in the case of water-cooling he stated that certain wells in the Sacramento Valley—where high temperatures prevail for a large part of the year—yield water of 60 deg. and 65 deg. the year 'round.

"Of the 310 jobs our Company is serving," he continued, "the majority are summer comfort cooling systems. But let me add right here that it will be unfortunate if the general public is allowed to confuse 'comfort cooling' with air conditioning as a six-point functioning process." Mr. Hill then discussed market possibilities, such as theatres, hotels, restaurants, candy stores and fur shops: he laid particular emphasis on funeral chapels as potential users, in order to overcome, in part, the effect of emotional stress on those gathered for services. . . . "We have the equipment; we have the markets," he concluded, "but it seems to me we mostly need a satisfactory sales outlet. Will it be the heating and piping contractor? the plumber? the sheet metal worker? —all are vitally interested. Or will the work be handled by a new kind of retail outlet?" Continuing on this subject, Curtiss N. Gilley of the Heating, Piping and Air Conditioning Contractors National Association, spoke of unsatisfactory conditions under which conditioning equipment is now marketed.

Secretary J. W. Wrenn announced the following names of new members: W. L. Harris and C. M. Welshone of the National Ice & Cold Storage Co., O. Kindorf of Electric Appliances, Inc., A. W. Ray of General Controls Co., M. B. Smith of the Hammond

At the recent annual convention of the Heating, Piping and Air Conditioning Contractors National Association, held in Atlantic City, N. J.—Top row, left to right: G. A. Perry, Utica, N. Y.; Joseph Murphy, sales manager, Taco Heaters, Inc., New York City; Geo. N. Wallace, of George N. Wallace Co., New York City, and Graham Ford, Richardson & Boynton Co., New York City.—Bottom row: Paul Schneider, Utica, N. Y.; A. De Rosa, Utica, N. Y.; W. H. Baker, Jr., and R. B. Scull, both of Crane Co.



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Single Phase . . . Polyphase . . . Direct Current
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Century MOTORS

Ol' Faithful
AUTOMATIC HUMIDIFIERS

for LOW PRESSURE STEAM
Offer a New Road to Profits for You

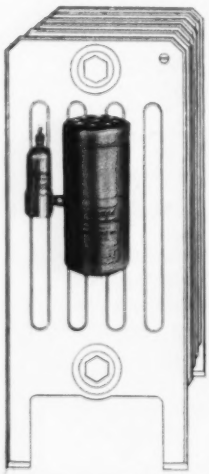
A sample will convince you, your many customers and prospects of the merits of this little wonder in producing real comfort during those long winter days, when this type of air conditioning is so essential to health.

SELF FILLING

It condenses its own water supply automatically, and reheats this water into vapor, which is expelled into the air in proportion to the heat of the radiator.

A RELIABLE SUPPLY VALVE

The supply of condensation to the evaporating chamber is controlled by a float and a patented removable self-closing valve designed similar in every respect to the dependable automobile tire valve that you ride on every day in the year. It has a specially prepared spring and a heat resisting rubber seat.



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AUTOMATIC HUMIDIFIERS
FOR VACUUM STEAM & HOT WATER RADIATORS

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Lumber Co., W. M. Derbyshire of the Ace Sheet Metal Works, H. L. Shea of Montague & Co., William Queirolo of the Riddle Sheet Metal Works, and F. J. Harty of the Hammond, Nelson Corporation.

Distributors for Motor Wheel Corporation Report Large Increase in Business

Distributors for the Heating Division of Motor Wheel Corporation of Lansing, Mich., report startling sales increase in many territories for the first seven months of the year. Increases over the same period last year have ranged all the way from 40 per cent to 582 per cent.

A few of the more impressive records follow:

Modern Equipment Company of Baltimore, Md., reported a total increase of 582 per cent.

C. F. Bowen, distributor at Charleston, N. H., had an increase of 318 per cent over the same period last year.

Horne-Wilson, Inc., covering Florida, Georgia and large portions of North Carolina and South Carolina, raised its average 261 per cent.

The Economy Range Company of Asbury Park, N. J., reported an increase of 138 per cent, while Henry Sieberts Sons of Rochester, N. Y., who made an extra good record last year, had a 41 per cent increase.

University of California Starts Course in Air Conditioning

Responding to a real demand for a short yet comprehensive course in air conditioning, the University of California is now providing such facilities through its Extension Division. The first lecture was given September 21st at 540 Powell Street, San Francisco, the instructor being R. G. Minarik, Ph.D., of the Department of Mechanical Engineering. The work is divided into three semesters of 15 hours each, the semesters, in turn, constituting ten lectures of one and one-half hours, each.

The course deals with the processes of air conditioning, particular emphasis being laid upon the fundamental principles involved. The extensive industrial and domestic needs for air conditioning and the methods of dealing with specific problems arising therefrom are discussed, qualitatively and quantitatively, especial attention being devoted to problems associated with the home and small shop or store. Several illustrative examples on heat loss estimation, humidification, the use of psychrometric charts, etc., are included. Discussion of the geographic as well as the economic and mechanical factors which influence the performance of typical conditioning equipment comprise a major part of the course. As closely as time permits, the lectures will parallel the material contained in the A. S. H. V. E. handbook. The use of advanced mathematical and thermodynamic theories is avoided throughout.

The decision on the part of the University to establish such a course was reached following the annual meeting of the Air Conditioning Society of San Francisco, last summer, when the minimum number of names of "students" were secured.

Petroleum Heat & Power Co. Announces New Three-Year Payment Plan

The Petroleum Heat & Power Company of Stamford, Conn., held its New England sales convention recently at the Hotel Kenmore in Boston, Mass. About 400 dealers and sales representatives were present as guests of R. P. Babcock, New England sales manager, and Frank B. Hawkins, divisional sales manager.

J. H. O'Brien, executive vice-president and general manager; Carl E. Shields, vice-president and factory manager, and H. W. Dexter, general sales manager, were all present from the general office and factory in Stamford.

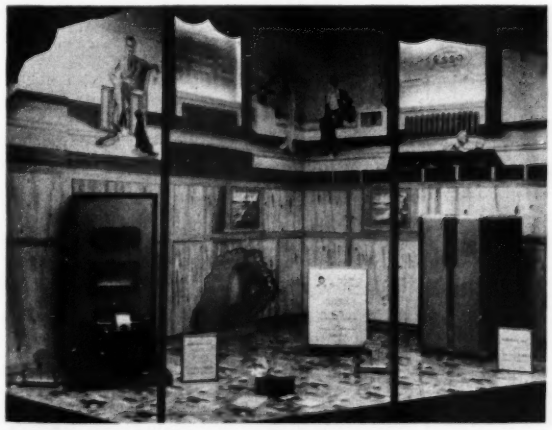
Mr. Dexter addressed the gathering and announced a new three-year payment plan for the sale of the company's oil burners. Other speakers included A. E. Hess, national service manager; James E. O'Donnell, national order department; C. E. Wheatley, national adjustment department; Glenn Arnold, vice-president and manager of the Boston Branch, and W. E. Downing and John Gill.

Home Oil Burner Corporation Holds Successful Sales Meeting

Home Oil Burner Corporation of Hempstead, Long Island, N. Y., distributor for the Heating Division of the Motor Wheel Corporation of Lansing, Mich., held a highly successful sales meeting in Freeport, N. Y., recently, which 156 dealers attended. Sid Harvey, president of the Home Oil Burner Corp., acted as chairman and welcomed the men in attendance. He also introduced N. M. Edwards, representative of the Motor Wheel Corporation, who gave a fine discussion of this concern's products. Sales Engineer Adolf Frantz was also present and answered questions.

Will Manufacture Oil Burners and Stokers

The General Heat Appliances, Inc., of Detroit, Mich., has been incorporated to manufacture oil burners, stokers and other heating equipment.



One of the current displays in the Du Pont Exhibit on the Board Walk featuring an oil burning boiler made by the Gilbert & Barker Mfg. Co. of Springfield, Mass., a subsidiary of the Standard Oil Company of New Jersey

No Metal Equals

COPPER

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Remind your customers that copper is not only 100% non-rusting, but has by far the longest service record of any of the non-ferrous metals.

Brown & Brothers Seamless Drawn Boilers, always made of copper, have been on the market since 1876. Some of those old timers are still in service even after more than fifty years.

But besides having many years of durability, these boilers have strength. There is no longitudinal seam. The circular joint around the center is protected by a heavy band of solid copper. Spud connections are locked in. Each tank is thoroughly tested to 250, 300, or 350 pounds, according to its rating.

You cannot sell your customers a better range boiler than this Brown & Brothers Boiler nor one that will give them a better return on their investment. It comes in all sizes for domestic purposes.

E. B. BADGER & SONS CO.

75 PITTS STREET BOSTON

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AUTOMATIC HEAT

NOW PRICED FOR AMERICA'S BIG MASS MARKETS

In small homes or large — in every kind of store, small industry, or institution—the cost of Automatic Heat with a Whiting Stoker can now be even less than firing a furnace by hand. Here is a great new, practically untouched market, as promising from a profit standpoint as the field was for electrical refrigeration.

You can now offer upstairs temperature control and automatic firing in a staunchly engineered stoker at a cost that can be less than any other heating method. You can capture America's greatest new mass market!

But Whiting economies are obtainable only in the Whiting Stoker. No other has Five Speed Drive, Smoke-Eliminator, Dual Draft Burner and Masterstat Control—without all four of which you cannot hope to win the family of modest means.

Many plumbing and heating contractors are becoming vitally interested in the new field Whiting Stokers are opening up. If you want to know whether your territory is still open, mail us coupon below for all the facts. Whiting Corp., Harvey (A Chicago Suburb), Illinois.

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Appointed Distributors for Hartford and Vicinity

The Super Oil Heater Sales Company of East Hartford, Conn., has taken over the distribution of the products of Silent Glow Oil Burner Corporation of Hartford, Conn. Its territory will include Hartford and the surrounding region. The Super Oil Heater Sales Co.'s offices and display room are located at 613 Connecticut Boulevard, East Hartford, and its officers are: President, H. Roberts; treasurer, D. B. Roberts; assistant treasurer, K. Pierce, and secretary, L. S. Blaschik.

R. M. A. Will Hold Its Annual Meeting in Chicago October 22

The Refrigerating Machinery Association will hold its annual meeting on October 22 at the Stevens Hotel in Chicago, according to announcement issued by W. S. Shipley, president of the Association. Officers will be elected and plans made for the Association's activities for the coming year. This Association has its headquarters at 915 Southern Building, Washington, D. C.

Air Conditioning Engineers Open Season

The Air Conditioning Engineers held their first fall meeting at the Lighting Institute, 20 North Wacker Drive, Chicago, on Wednesday evening, September 12. More than one hundred were present.

The meeting was opened by five-minute talks by nine members. These talks were on the following subjects: Filters, Compressors, Cooling Coils, Heating Coils, Boilers, Warm Air Furnaces and Fans.

These talks were followed by an address by John Howatt, in which he stated that practically nothing is known about the physiological side of air conditioning. We know how to heat, cool, cleanse, humidify and dehumidify; but nothing is known as to what temperature and humidity should be maintained inside under varying conditions outside. According to rule-of-thumb in cooling, inside temperature should be halfway between outside temperature and 82 deg. Fahr.

Frank Chase stressed the point that more information about air conditioning is needed. He expects that the time will come when every inch of space occupied by human beings for any purpose whatever will be air-conditioned.

Announces Change of Name

The Silent Automatic Oil Burner Company of New London, Conn., has announced that it has changed its name and will in the future do business under the name of Automatic Heat, Inc.

Death of George W. Forster

George W. Forster, divisional sales manager of the Anchor Post Fence Company of Baltimore, Md., died recently at the Memorial Hospital in Morristown, N. J., after a short illness. Mr. Forster, who had been with the Anchor Post Fence Co., twenty-five years, was on a vacation at Budd Lake, N. J., when he was overtaken by illness. His recent activities were connected with the company's Fluid Heat Division.

May Oil Burner Corp. Holds Dramatic Sales Meeting in New York

Taking a hint from a Broadway theatrical hit, the May Oil Burner Corporation of Baltimore recently staged and produced a distributor meeting with a favorable and dramatic selling appeal. The company's distributors in the Grand Ballroom of the Hotel New Yorker, New York, on August 27 faced a large stage divided into three parts, permitting the action of the play to progress without waiting on the scene shifter.

Before the presentation got under way, Albert J. Fleischmann, president of the Company, related his experience of having heard a negro evangelist sermonize on the parable of the three servants who were given talents of silver by their master.

DRAMATIC COMPARISON OF SELLING METHODS

As the curtain rose on the first scene, a negro preacher was seen explaining the parable. Then the scene on the left side of the stage was shown where John Smith a dealer located with his retail salesmen, receives a shipping case of sales helps from the factory but does not bother to unpack it. A retail sale is almost theirs except for the indifference of John Smith and the awkwardness of his salesman. As the curtain falls on this scene, the theme of the negro preacher is resumed and the parable relating to the successful servants is told. In contrast to the indifference of John Smith, a sleepy-eyed dealer—an aggressive distributor is shown who eagerly accepts the sales helps that are sent to him and who cooperates with the factory representative in the training of his salesmen and their education in making sales.

The method of teaching by playlet is neither novel nor unusual, but the persistent and deafening applause that followed each scene indicated that the May distributors were well impressed by the method chosen to induce them to make full use of all the sales facilities afforded.

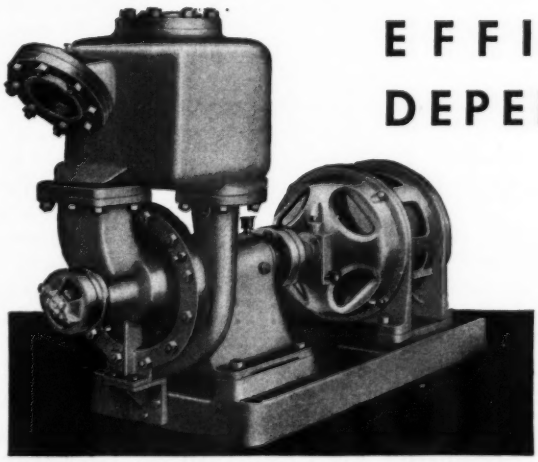
Business Personals

William F. Brannan

William F. Brannan, president of the Anchor Post Fence Co. of Baltimore, Md., has just been appointed representative of the industry on the Baltimore Labor Relations Panel to fill the vacancy caused by the resignation of Charles W. Galloway, operating vice president of the Baltimore & Ohio Railroad.

John G. Ross has been appointed representative for the Republic Steel Corporation of Youngstown, Ohio. He will make his headquarters at 250 Stuart Street, Boston, Mass. Mr. Ross was formerly with the Reading Iron Company of Reading, Pa.

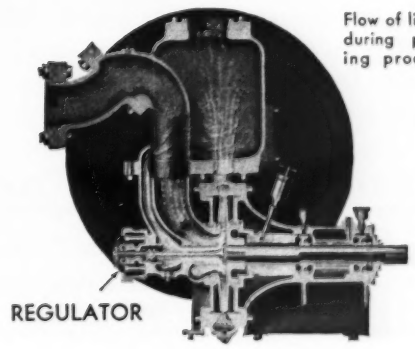
AMES SELF-PRIMING CENTRIFUGAL PUMPS



EFFICIENT • SIMPLE
DEPENDABLE • RUGGED

The Ames Regulator arrangement on this type of pump permits precise control of priming speeds so that the most efficient point can be easily attained for any given lift.

For general pumping service against low, medium, or high heads in the handling of clear liquids and liquids containing small percentages of solids.



Flow of liquid during priming process.

REGULATOR

AMES PUMP COMPANY, INC.
30 CHURCH STREET • NEW YORK, N. Y.
Manufacturers of vacuum heating, condensate, centrifugal pumps, and fuel oil pumping-heating units
Division of American Locomotive Company
Representatives in all principal cities. Products manufactured and sold in Canada by Montreal Locomotive Works, Ltd.

● No matter how carefully you select your equipment for heating, refrigerating and air conditioning, its proper functioning and the service it will give depend largely upon its controls.

You can avoid paying the penalty of inaccurate, unreliable controls. Insist that controls marked "Genuine Detroit" be furnished with all your equipment. It is a name that has been synonymous with quality and precision manufacture for more than 50 years.

From the testing of the raw materials...the accurate temperature control of molten metal...through the precision processes of manufacture...up to the final rigid operating test...step by step, each control must prove its right to bear the name "Genuine Detroit".

For your protection, for your customer's satisfaction, as a safeguard to your reputation—look for the name "Genuine Detroit" on all controls used on heating, refrigerating and air conditioning equipment.

DETROIT LUBRICATOR COMPANY

DETROIT, MICH., U. S. A.

Canadian Representative: Railway & Engineering Specialties, Ltd., Montreal, Toronto and Winnipeg

Sales Helps Offer Aid to Dealers—

New Booklet Features Registers for Air Conditioning

The Auer Register Company of Cleveland, Ohio, has just issued Register Booklet No. 34, consisting of 20 pages, 3½x6 inches in size, illustrating and describing its line of registers and grilles. The booklet devotes much space to registers for air conditioning installations, and their new features, the most important being the slide frame and the off-set bevel edge face.

Gar Wood Industries, Inc., Issue Circulars on Oil Burners and Air Conditioning Equipment

The Air Conditioning Division of Gar Wood Industries, Inc., of Detroit, Mich., has just issued several circulars illustrating and describing its oil burners for steam, vapor, hot water or warm air heating systems, its automatic burner and steam boiler, a co-ordinated unit, especially adapted for burning oil efficiently. Special attention is also given to the company's air conditioning unit, which is a matched boiler burner unit combined with an indirect conditioning cabinet to keep the air properly humidified, filtered, and warmed in winter, and to circulate filtered air through the house during the summer weather.

Issues Two Bulletins on Sheet Steel Insulation

The American Flange & Manufacturing Company, Inc., of 26 Broadway, New York City, has issued two bulletins featuring its sheet steel insulation. One of these bulletins is entitled "Ferro-Therm—Something New in Insulation," and it illustrates and describes this new insulation in detail. The other bulletin contains an article, "Testing Sheet Steel Insulation," by J. T. Nichols, assistant manager of research, American Sheet and Tin Plate Company, Pittsburgh, Pa., giving the results of several tests of this material. This metal insulation consists of parallel spaced metallic sheets with dull or non-bright surfaces, such sheets having low emission and high reflection values at the frequencies of radiant heat. Thin sheets of commercial black steel are used and are formed with angularly arranged surfaces with small ribs at the jointure of these surfaces, thereby securing rigidity, elimination of vibration with prevention of propagation of sound waves and improved insulating qualities.

Appointed Air Conditioning Distributors for the St. Louis Trade Area

Temperature Corporation of New York City, national distributors of air conditioning equipment made by the Amplex Division of Chrysler Motors, has just appointed the Weber Implement & Automobile Company, Locust and Nineteenth Streets, St. Louis, Mo., as its distributor in the St. Louis trade area. The Weber Implement & Automobile Co. was organized in 1902, and its officers are: George Weber, president; Albert Weber, vice president, and Edward R. Koenig, secretary and treasurer.

Products FOR Dealers

This section gives a report of the latest news of selected automatic heat and air conditioning products. The general new products section starts on one hundred thirty-one.

Oil Burner and Boiler Combination

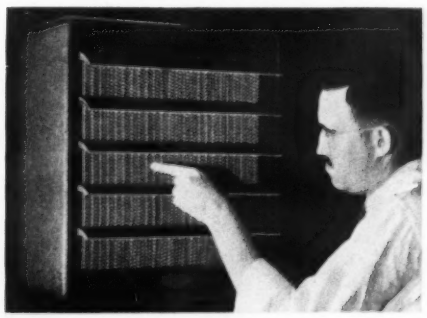
A new automatic heating device for domestic heaters is announced in the form of a self-contained unit combining an integrally designed steel heating boiler and an automatic oil burner. This equipment has been made adaptable to both hot water and steam applications. Provisions also have been made for the installation of an automatic water heater for domestic purposes. With a capacity of from 420 to 600 sq. ft. of steam radiation, or 670 to 960 sq. ft. of hot water radiation, the unit is rated as capable of heating homes of from five to eight rooms in size. It weighs 736 lb. complete, is 42¾ in.

high, 46 in. long and 20½ in. wide. The length including the burner and smoke hood is 61 in. The consumption of fuel using number 1, 2 or 3 oil ranges from .85 to 1.32 gallons per hour according to the rating which has been released by the manufacturer. The heater is made to burn the heavier and cheaper fuels.

An over-sized cylindrical combustion chamber has been included with the idea of providing ample space for developing quickly a great amount of heat from a small quantity of oil. Long flue passages also are listed as a feature of this equipment. The boiler is of welded steel construction. As for the burner unit, this is described basically as being of the high pressure atomizing type. It is located in a position at the rear of the heater, immediately below the smoke hood, for the purpose of having it out of the way. The burner is exposed to give easy accessibility and to eliminate the possibility of excessively high temperatures. A ⅛ h. p. 60 cycle motor, 110 volt A. C., is used for operating the unit. Ignition is of the continuous spark type. This is a joint product of the Kelvinator Corporation located at 14250 Plymouth Rd., Detroit, Michigan, and American Radiator Company, located at 40 West 40th St., New York City.

Unit Heater for Industrial and Commercial Needs

An announcement just recently has been made of a new line of unit heaters. It has been developed to include improvement in design, quietness, and appearance. In order to meet the needs for unit heaters in commercial installations, the cabinets for these items have been designed with the idea of keeping them in harmony with the simplicity of modern architectural practice. They are finished in a dark brown morocco-like texture selected for durability and resistance to abrasion. Special attention has been paid to the factor of quietness in these units. Streamlined tubes, special fins, and sturdy cabi-



nets combined with resilient motor mountings are employed for the purpose of eliminating resonance and for isolating vibration. The streamlined tubes are for the purpose of providing large steam ways. The header tanks have integral baffles with the idea of assuring an even steam distribution throughout the element. Specially designed mountings described as being full floating are included for the purpose of maintaining the alignment of the heating element within the cabinet, of eliminating expansion stresses between the cabinet and the element

M S V

NEW "Nu-way" Genii

Low Priced Model

A COMPETITIVE MODEL
The Nu-Way MS-V Model "Genii" is low in price and meets all competitive markets.

CAPACITY
The Nu-Way MS-V Model "Genii" has a capacity of 200 to 1200 feet of steam. It is attractive in appearance and carries the nationally accepted Nu-Way "Genii" name for quality.

COMPLETE LINE
The Nu-Way Corp. also has a complete line of automatic oil burners, hot water heaters and boiler heating units.

WRITE TODAY
For more information. A franchise with Nu-Way is a franchise of value.

NU-WAY "Genii" automatic oil burner Model MS-V
Attractive—Efficient—Low in Price.

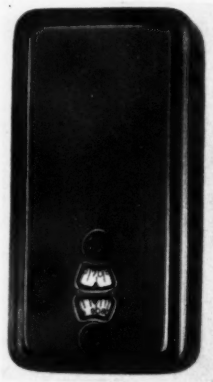
The NU-WAY CORPORATION
ROCK ISLAND · · ILLINOIS

Ohio Brass Company
Mansfield 1679V Ohio

and of protecting the element from piping strains. This line of unit heaters is made in capacities ranging up to 1,200 sq. ft. of equivalent direct steam radiation. The maker is Fedders Manufacturing Company, Inc., located at Buffalo, New York.

Humidity and Temperature Control Combined

Compactness is one of the features listed in favor of the temperature and humidity control shown in the accompanying illustration, which just recently has been placed on the market. The mechanism is contained in a case 6 in. high by 3½ wide and 2½ deep. In the thermostatic portion the bi-metallic actuating element tips a mercury switch, thus making or breaking the circuit required to turn heat on or off. It is designed so as to be used on either low or line voltage circuits and to operate on a temperature change of less than one Fahr. deg.

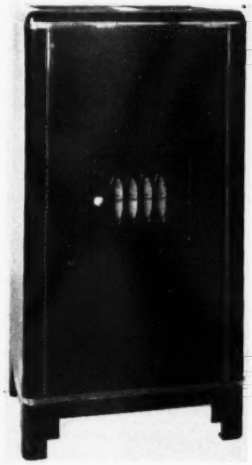


above or below the setting. Human hair is the actuating element of the humidity control. This also is arranged to tip a mercury switch capable of handling either low or line voltage current. It is rated to control to within 2 per cent relative humidity under a normal rate of change in relative humidity. The settings for temperature and humidity are made with the small knurled knobs on the front of the instrument. The temperature range is from 60 deg. Fahr. to 80 deg. Fahr. and the humidity settings range from 20 per cent to 80 per cent relative humidity. The instrument is available either with or without the humidity indicator scale. Minneapolis-Honeywell Regulator Co. of Minneapolis, Minnesota, is the manufacturer.

New Oil Burning Space Heaters

An entirely new cabinet design is listed as an outstanding feature of two new circulating water heaters just recently announced and represented by the accompanying illustration. The utility circulator model of this line is offered in a pebbled finish with modern lines. The deluxe model is finished in porcelain enamel with stainless steel trim. Another feature is in the design of the top grilles of these units. These are constructed so that the warm air is diffused and sent out of the top

at a 45 degree angle. These models employ what is described as a dual chamber oil burner. This is designed for both high and low settings with the idea of increasing the range of the unit to a point where one model will meet a variety of size requirements. Motor Wheel Corporation, Heater Division, located at Lansing, Michigan, is the manufacturer.



Automatic Humidifier Is Announced

The accompanying illustration shows a device recently placed on the market for providing humidity. It is made of cast aluminum, brass and bronze and is shipped complete with a regulating valve, copper tubing and screws for its installation.

This unit also is available without the evaporating pan shown in the accompanying view. In this, the idea is that the feeder can be used for maintaining a definite water level in a humidifying pan already provided. This equipment is manufactured by C. T. Mudge Co., Inc., 333 E. Morrison St., Portland, Oregon.

A New Heat Regulator

Here is a new heat regulator which was placed on the market a short time ago as being particularly adaptable to the modernization of existing heating systems of all types. Further, it is described as lending itself to the control of buildings either by way of the direct operation of the boiler draft, oil burner, stoker, gas boiler or to the control of various types of valves of either electric or pneumatic structure. It is designed to start the heating system automatically in the morning and to turn it

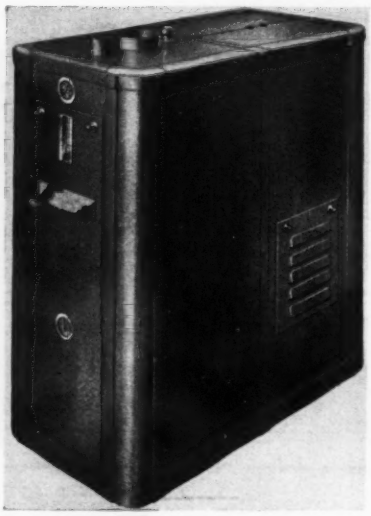
FALL
and the time is here to install
EXCELSO
FIRE POT GENERATORS
FIN PIN HEATERS
PHAETON HEATERS
ALSO
EXCELSO INDIRECT WATER HEATERS
A type and size of Heater for every Boiler or Furnace
EXCELSO PRODUCTS CORP.
57 Clyde Avenue Buffalo, N. Y.
or
Ask Your Jobber

THIS MOTOR is the heart of the Model 100 Heat Regulator Set for damper control. Noiseless and rugged, it is definitely controlled by the 80-T thermostat or the new limit control.

Complete set contains motor, thermostat, limit control, transformer and the necessary chain, cable and pulleys. A unit package ready for installation. Write for prices.

AUTOMATIC PRODUCTS CO.
121 N. BROADWAY MILWAUKEE

A FLASH BOILER STABILIZED—



DESIGNED from bottom to top to be used with oil burners.

MAKING MORE SATISFIED CUSTOMERS EVERY DAY

20% of water boiling generates steam quickly.

80% stabilized the action of the quick steaming generators, holding heat the longest possible time.

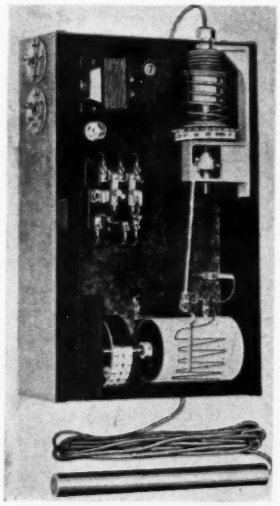
A complete unit enclosing boiler and large tank connecting to copper coil for domestic hot water.

Oil burner of any make fits into ample space.

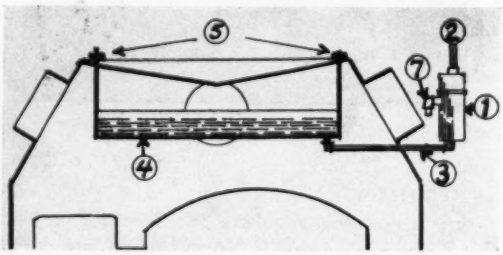
Send for Full Information Today

WATERFILM BOILERS INC
154 OGDEN AVE. JERSEY CITY, N.J.

off at night at a time regulated by outdoor weather conditions. It is provided with ready means for adjustment by the man responsible for the heating of the building, for unforeseen and unusual conditions. Another feature of this control is that it is made to eliminate the opening



of windows by tenants. Some of the features which are mentioned in favor of this equipment are that the time of starting the heating system in the morning is regulated automatically by the weather; the length of the morning heating period, which is a period of constant operation, also is regulated automatically by outdoor conditions, as is the time of shutdown for the night, and definite firing periods are produced. This control is designed to be located centrally where a group of buildings is to be regulated. That is, the control cabinet can be placed in the office of the engineer in the power plant building. Low voltage wires from this control cabinet to the several valves in the branch mains to the several buildings are described as being the only connecting mediums from the control equipment to the valve to be controlled. J. P. Marsh Corporation, 2073 Southport Ave., Chicago, Illinois, is the manufacturer of this new temperature control equipment.



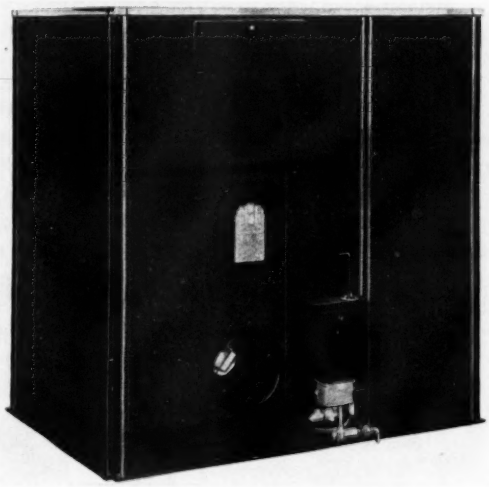
Automatic Feeder for Humidifiers

The accompanying illustration indicates how an automatic water feeder, just recently placed on the market, can be used in connection with a humidifier for the pur-

pose of maintaining a constant water level. The water enters the top of the feeder, passes through a screen and then passes through a rubber seated self-closing valve. The flow of water into the humidifier pan is regulated by a float which causes a lever to push upward on the valve just mentioned. This upward push unseats the valve until the water level in the humidifier pan rises to a predetermined height. When the float comes to rest, the self-closing valve shuts off. This automatic water feeder is manufactured by Maid-O'-Mist, Inc., 45 East Ohio Street, Chicago, Illinois.

Oil Burner and Air Conditioner Combination

Here is an oil fired unit which is designed to provide the cleaning, humidifying, warming and circulating features of air conditioning. The model shown in the accompanying illustration is described as having a heating capacity of 115,000 Btu. It is 62 in. in height, 66 in. in



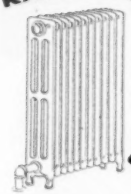
width and 40 in. in depth. It has a maroon colored baked enamel finish with stainless steel and black japan trim which is indicated in the above view.

Also it is available in a galvanized iron finish. Filters are provided for cleaning the air while a control valve connected to a domestic water supply furnishes water for humidification purposes. Forced circulation is provided by means of a blower and an automatic control regulates the operation of the unit. Perfection Stove Company, of Cleveland, Ohio, is the manufacturer of this new air conditioning equipment.

A Burner for Anthracite Coal

The unit shown in the accompanying illustration has been placed on the market just recently as a means of utilizing buckwheat number one anthracite coal in the smaller sized boilers found in single and small multiple dwelling houses. This equipment is made to operate on natural draft. The firing intervals are described to be comparable to those resulting from the use of large-size anthracite. The installation of this equipment is designed

RADIATION

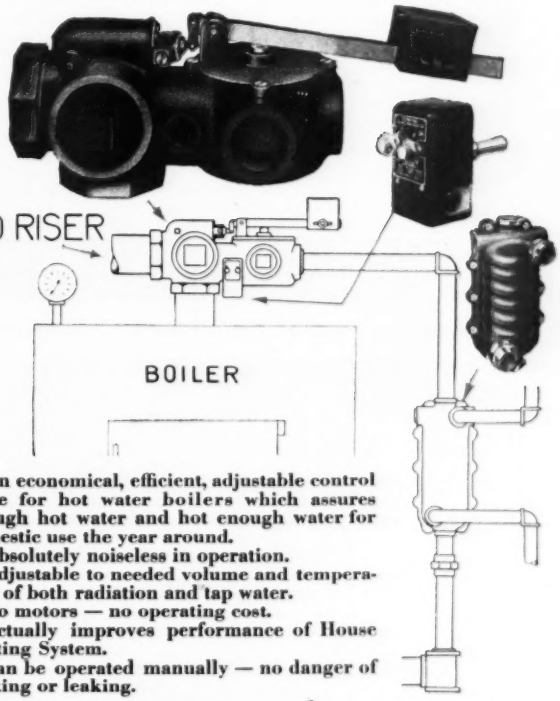


At Last!

TAP WATER

BOTH HEATED BY THE HOT WATER BOILER AND BOTH PERFECTLY CONTROLLED BY THE NEW

GENERAL RISAVALVE



- An economical, efficient, adjustable control valve for hot water boilers which assures enough hot water and hot enough water for domestic use the year around.
- Absolutely noiseless in operation.
- Adjustable to needed volume and temperature of both radiation and tap water.
- No motors — no operating cost.
- Actually improves performance of House Heating System.
- Can be operated manually — no danger of sticking or leaking.

The new General Risavalve meets and solves every problem of indirect hot water control. It also overcomes every point of sales resistance including cost — it is the low cost method as well as the best. Get all the details of the General Franchise which gives you the outstanding 3-point combination in today's hot water heating picture. Write today for details of:

1 General Risavalve
2 General Duall Boilerstat
3 General Indirect Water Heaters

PRODUCTS OF

GENERAL FITTINGS CO.
100 BAKER ST. PROVIDENCE, R. I.

95% of Oil, Gas and Coal Fired Furnaces Need

DRAFT-O-STAT

Hotstream Indirect Heaters

Supply hot water at extremely low cost. Easily installed on any type of boiler. Also used for preheating fuel oil. A full line of sizes to meet every need.

Write for literature.

Because—it automatically controls chimney drafts, thus insuring maximum combustion efficiency. Many users report fuel savings up to 25%.

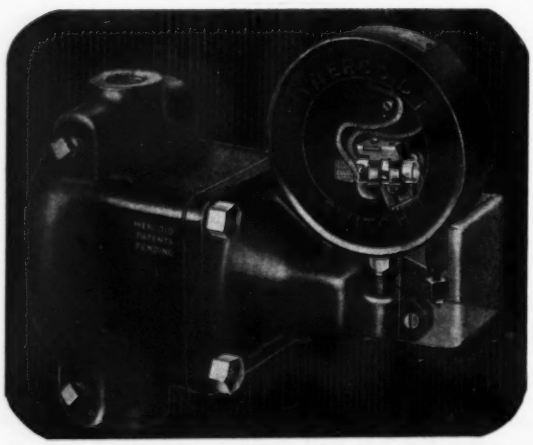
Practically every furnace and boiler owner is *your prospect*. Draft-O-Stat is easy to install. Gives you a generous profit. Write for descriptive literature.

Domestic types 6" to 20"

Ask about our exclusive franchise on industrial types, sizes 16" to 36".

THE HOTSTREAM HEATER CO.

"Makers of Heaters that Heat" CLEVELAND, OHIO



PROTECT THE BOILER AT THE WATER LEVEL

All steam boilers employing automatic heating equipment should be guarded against the hazard of firing into a dry boiler. Mercoid offers Figure 72, a low water control having a low range and sold at a low price. Positive protection assured.

List Price $30.00
DEALER'S NET PRICE $16.00

Other controls available for pressures up to 300 lbs. Figure 71 is used for Combined Pressure and Low Water Control.

Write for Bulletin No. 210

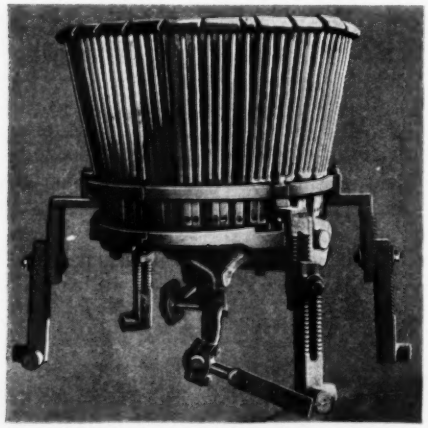
Mercoid Controls Are Distributed and Stocked in Many Cities By The Graybar Electric Co., Inc.

THE MERCOID CORPORATION

Sole Manufacturers of The Mercoid Switch

4221 Belmont Avenue -:- Chicago, Illinois

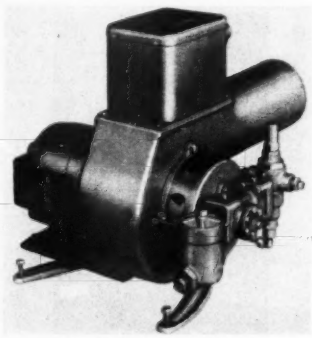
to be made without involving structural changes in the boiler. Sizes range from 18 in. and up for round burners and from 16 in. and up for rectangular burners. Flameking Company, Inc., located at 2159 Madison Ave., New York City, is the manufacturer of this coal burning equipment.



Temperature Control for Heating and Air Conditioning

The unit illustrated here just recently has been placed on the market as a temperature control device for heating and air conditioning and industrial purposes. It is described as being a heat motor valve designed for rapid heating and rapid cooling sufficiently powerful to operate valves up to 4-in. in size. An automatic interrupting device is included. This is actuated by the valve itself which permits a throttling control providing six valve positions between open and closed, for a total temperature change of one deg. Fahr. The valves are so arranged that they return to the safe position automatically in the event of current failure. Also, they are designed so as not to remain partly open. Valves for heating normally are closed and return to the closed position. Valves for cooling, normally are open and return to the open position.

The line comprises automatic valves for steam, gas, oil, water or brine flow control. The heat motor which is employed to operate the valve consists of a pressure chamber in which the volatile fluid is vaporized by an electric strip heater. The vapor pressure thus built up, compresses a flexible bellows in the chamber. Wilbin Instrument Corporation, 40 E. 34th St., New York City, is the manufacturer.



Improvement in Oil Burner Announced

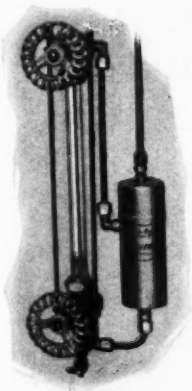
Here is an oil burner which is listed as being an improvement over an older piece of equipment. One feature mentioned for it is that it is made up completely of standard parts with the idea of making it possible to obtain replacements in practically any part of the United States. Its capacity rating ranges between 4 and 5 gals. of oil per hr. In addition, it is rated as being capable of taking care of the requirements of a small installation. A novel and efficient system of mixing the oil and the air is claimed for it. As for appearance, it is finished in opalescent gold and bronze and, generally speaking, the unit has been designed to be simple, sturdy and compact. Monogram Oil Burner Co., located at Roselle Park, New Jersey, is the manufacturer.

An Oil Float Valve

The valve considered here just recently has been placed on the market and has been designed to combine into a single unit a constant level valve, a large strainer, and a safety trip mechanism. It is made to offer complete valve protection to vaporizing burners of either the constant level or return overflow types. The oil enters through the strainer into the upper chamber where the constant level is maintained. Should this level rise for any reason the oil overflows into the sump. This raises the float, thus automatically operating a trip mechanism which is designed to shut off further flow. One of the models is provided with a long type sump which has a connection for the return line from the burner proper. Oil entering at this point also causes a shut-off of the flow. This connection forms a trap to prevent the discharge of air or gases into the room, the idea being to eliminate the necessity for a trap in the return line

STOP WATCHING THE WATER-LINE

USE *Auto-Vent* air relief valves



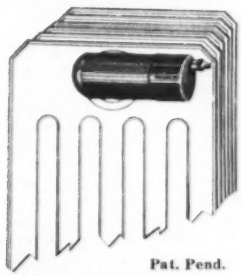
Pat. Appl. For
Size 2¼"x5½"
No. 85 Water-Boy
Retail price
$4.75

The Auto-Vent has the same type of reliable valve construction as the dependable self-closing automobile tire air valve. The valve unit is removable, the same as a tire valve. The valve is opened by a small copper float when air accumulates in the radiator and closes automatically when water raises the float. It assures perfect circulation in the radiator at all times. *Get your sample today, and sell your customers before the other fellow beats you to it.*

And the WATER-BOY safety feeder

will keep low pressure steam boilers, hot water heating plants, humidifying pans in warm air furnaces or on radiators, sterilizing tanks, open water tanks, etc., supplied with water. *You have to see this little giant to appreciate it.*

YOUR JOBBER CAN SUPPLY YOU



Pat. Pend.
Size 1½"x3½" long
Retail price $2.75

OTHER *Auto-Vent* USES

1. Vents over head water lines.
2. Vents water heater.
3. Spill valve for excessive water levels.
4. Vacuum breaker for tanks, water lines, flush valves, etc.

MAID-O'-MIST Inc.
AUTOMATIC HUMIDIFIERS
FOR VACUUM-STEAM & HOT WATER RADIATORS

43 E. Ohio St., Chicago, Ill.

WE ARE CO-OPERATING
BETTER HOUSING PROGRAM

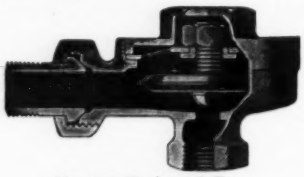
REBUILD AMERICA!

Replace OLD, INEFFICIENT HEATING SYSTEMS with MODERN - ECONOMICAL "MILWAUKEE" INSTALLATIONS

Millions of buildings . . . large and small . . . in all sections of the United States will be modernized and otherwise reconditioned with monies available under the provisions of the National Housing Act. Right Now, Thousands of Heating Systems are being completely renovated in a last minute effort to increase tenant satisfaction during the coming winter months.

The jobber must co-operate with the manufacturer by encouraging building owners and operators to take advantage of the liberal provisions of the Act and thereby restore activity and create new life in the nation's basic industry . . . the building trades.

The "MILWAUKEE" line of Heating Specialties is complete . . . and a complete "Milwaukee" installation is a guarantee of higher heating efficiency and lowest maintenance cost. Thousands of "Milwaukee" installations all over the nation bear mute evidence of the finer engineering features and more dependable service which characterize all "MILWAUKEE" products.



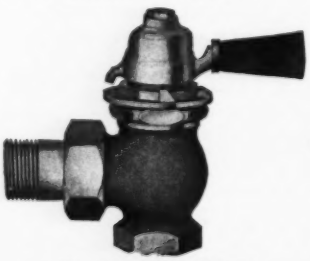
No. 350 Horizontal Type Thermostatic Trap

THE COMPLETE "MILWAUKEE" HEATING SPECIALTY LINE

The name "MILWAUKEE" is your guarantee of

SUPERIOR CONSTRUCTION
PRECISION MANUFACTURE
FINER APPEARANCE
and
LONGER
MORE DEPENDABLE
SERVICE

PACKLESS RADIATOR VALVES
THERMOSTATIC RADIATOR TRAPS
AIR ELIMINATORS
QUICK VENTS
SYPHON AUTOMATIC AND VACUUM AIR VALVES
WATER FEEDERS
DRIP AND BLAST TRAPS
BOILER RETURN TRAPS
ETC.



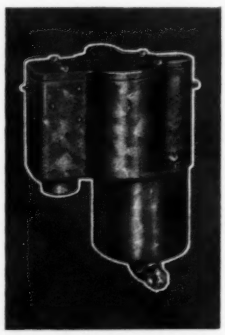
No. 209 Lever Handle Graduated Packless Radiator Valve

SOLD BY LEADING JOBBERS IN ALL PRINCIPAL CITIES

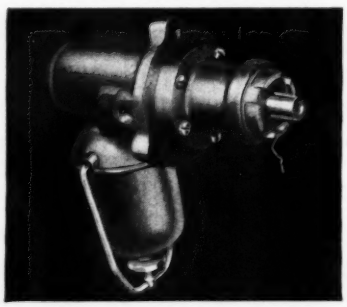
MILWAUKEE VALVE CO.
MILWAUKEE WISCONSIN

Manufacturers of
"MILWAUKEE" HEATING SPECIALTIES
"APPROVED" BRONZE VALVES
VALVES AND FITTINGS FOR THE OIL INDUSTRY

proper. A drain is included in the sump for removing oil preparatory to resetting. By pulling out on the pin, the oil is allowed to drain. When the pin is released, it closes automatically. It is made so that it cannot be left in the open position. It is maintained that this feature allows the excess oil to be drawn from the system without being burned before the trip mechanism is reset. The



accompanying illustration shows the valve with a short sump for protection of overflow of oil from the constant level valve only. It incorporates the same type of drain mechanism as described in the foregoing and is made especially suitable for space heaters, range burners, water heaters, and small oil burners. Bock Oil Burner Corporation of Madison, Wisconsin, is the manufacturer.



Strainer and Pump Unit

The automatic oil fuel unit shown here was placed on the market just recently as a combination strainer and pump for use in connection with pressure atomizing oil burners. One feature listed for this equipment is that only the oil that is burned is pumped. The device is made to pump automatically the correct volume without requiring any adjustment for different sized nozzles. Automatic air relief or air bleed provisions also have been incorporated. Still other features which are listed for this are that it develops full pressure and volume at the start of combustion with an instantaneous and positive cut-off of oil to the nozzle so as to prevent any dripping of oil when the burner is stopped. It is provided with a mechanical seal and pressure adjustment. Sundstrand Machine Tool Co., of Rockford, Illinois, is the manufacturer.

American Gas Association Announces Appointment of Publicity Committee

The American Gas Association has just announced the appointment of members of its recently created Publicity and Advertising Committee. These members are: Henry Obermeyer of Consolidated Gas Company of New York, chairman; Kenneth Magers, publicity manager, Union Gas & Electric Company, Cincinnati; R. S. McCarty, manager, advertising department, Philadelphia Company, Pittsburgh; H. W. Olcott, Jr., advertising manager, Philadelphia Gas Works Co., Philadelphia; D. D. Parry, advertising manager, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., and Wm. Reynolds, advertising manager, Electrolux, Inc., New York City.

Boston Heating and Piping Contractors Hold Annual Outing

The Heating, Piping and Air Conditioning Contractors Boston Association held its annual outing at Sandy Burr Country Club, Wayland, Mass., on Tuesday, August 28, with more than two hundred members and guests in attendance.

Louis McMurrer was chairman of the outing committee, and he was ably assisted by Walter H. Oleson, manager of the association, and by Maurice Chase. Other committee members deserving an individual vote of thanks were: F. T. Scott of Atlantic Pipe & Supply Co., and J. Frank Tuttle of Warren Webster & Co., in charge of golf; James Williams of P. A. Dolan Co. and Walter Dooley of Milwaukee Valve Co., in charge of entertainment; Matthew Flaherty, in charge of baseball, and the jobbers' special committee consisting of C. Flint of H. B. Smith Co., Harry Rivers of Boston Pipe & Fittings Co., and Harold Buse of Insulations Inc.

All prizes for golf were based on kicker's handicap between 65 and 85. Among the prize winners were:

Jas. Dwyer, A. J. Bianchi, W. W. Murphy, Larry Gelshenen, T. Dimock, Tom McCoy, Walter Ballou, Cole Flint, R. B. Crocker, Frank Johnson, Ray Sullivan, Robt. Robertson, Jr., M. A. Lynch, Geo. Hesslen, Clint Bostwick, Bill Nichol, J. F. Miller, A. T. Cornell, John Cronin, E. T. Dunn, Harold Christie, John Milliken, Geo. F. Elliott, Jim Driscoll, A. L. Pensell, W. A. Abbott, H. L. Martin, Leon Graves, A. T. O'Donnell, Walter Dooley, T. C. Drew, J. T. McConnell, P. W. Taylor, Thos. Davies, James Graves, H. A. Wood, A. A. Smith, J. D. Bresnahan, G. P. Bridges, Ed. Flanaghan, Sherley Mitchell, Louis McMurrer, Dave Boyden, John Slattery, Wm. Marsh, Ed. Tierney, Frank Morrison, Tom Dawson, Allen J. Blackhall, E. V. Hamilton, Ed Eastman, Ed. Lloyd, Herbert James, Ben Schultz, Tony Webber, Abe Scherus and John Roper.

Arthur F. King of Reading Iron Co. won the grand prize—$25, and Ed. Flanaghan won the bean prize.

In the evening a steak dinner was served following which Walter H. Oleson, manager of the association, introduced the outing chairman, Louis McMurrer, and Frank Howard of Ingalls & Kendricken, the only honorary member of the Boston association. Mr. Oleson also introduced William Campbell, formerly manager of the Boston Branch of Richmond Radiator Company, P. W. Donoghue, past president of the National Association of Master Plumbers, and Joseph C. Fitts, secretary of the Heating, Piping and Air Conditioning Contractors National Association.

Will Install Air Conditioning Systems

Comfortaire Corporation, 781 Whalley Avenue, New Haven, Conn., has been incorporated with a capital of $40,000, to deal and install air conditioning equipment. The officers of the company are: John C. Raisley, president and treasurer; G. E. Raisley, vice-president; J. Alfred Kroner, secretary. The board of directors is composed of the officers and Carl H. Hamming.

At the annual outing of the Heating, Piping and Air Conditioning Contractors Boston Association.

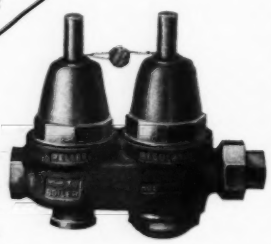
CASH ACME
IT'S AUTOMATIC

You Can Depend On

Cash-Acme Automatic Pressure Controls to Give Satisfaction

They operate equally well on coal, gas or oil fired boilers—There is no finer hot water heating control built than the new Cash-Acme Unit. Ask your jobber for information or write us for Bulletin DI.

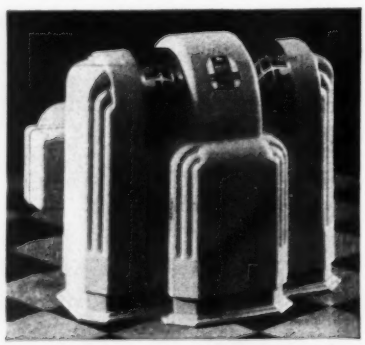
Types CA and CB



Designed for long and trouble-free service.

A. W. Cash Valve Mfg. Corporation
600 NORTH WATER STREET
DECATUR, ILLINOIS

★
Bettendorf
AUTOMATIC OIL BURNER
★



The OUTSTANDING 1934-35 BURNER
at a Compelling Price

BETTENDORF dealers are SELLING OIL BURNERS! Aided by Eye Appeal, Brilliant LASTING Performance, Advanced Engineering Features—and a Powerful Up-to-the-minute merchandising program, the New Bettendorf is Building REAL Profits for our rapidly growing group of dealers.

The same opportunity to dominate your local market is YOURS if you GRASP it and USE it. Find out TODAY why the New Bettendorf IS THE GREATEST VALUE PER DOLLAR EVER OFFERED BY AN OIL BURNER MANUFACTURER. The Micro Corporation, *A Subsidiary of The Bettendorf Company*, Bettendorf, Iowa.

See our Display at

COUPON BRINGS DETAILS

The MICRO CORPORATION, BETTENDORF, IOWA. *Gentlemen: Please send me details about your 1934-35 Dealer Franchise and your Help-The Dealer Selection. Dept. D-10.*

Name .....

Address .....

City ..... State .....

Baffles—

(Continued from Page 88)

good results when the burner is pitted below the grate level.

Due to the water tubes in the top of the combustion chamber of some boilers being very low, they require a rectangular baffle of a width that will permit them to be hung at the proper height above the burner.

There are a few types of sectional boilers in which the first pass from the combustion chamber is forward towards the fire door. In these boilers, the burner is installed well to the rear and only a horizontal baffle used, if space permits.

Some sectional boilers have openings between the sections in the crown sheet permitting the gases to pass directly from the combustion chamber to the upper flues. These should be covered with either fire brick splits or refractory cement so that a longer fire travel is obtained.

As a rule, steel boilers of the horizontal fire tube type require no baffling or blocking, especially where there are two fire passes through the boiler. In a boiler where there is a single fire travel through the tubes to the stack, a half round refractory baffle may be supported on two pipes inserted in the third or fourth row of tubes over the burner. This will direct some of the gases into the lower tubes on the low burner feeds.

On every installation the amount of blocking used is dependent upon stack conditions and obtaining a slight minus pressure in the boiler on high feeds. Blocking will reduce high stack temperatures in many cases; there being some small boilers, of course, with such short fire travel that it is difficult to reduce the stack temperature appreciably.

Crowds—

(Continued from Page 83)

the importance of each to complete comfort and healthful conditions.

Several times ten per cent of the visitors knew little or nothing about it. Some knew so little that their only questions were, "What is this business of air conditioning? What's it all about? What does it mean?"

To them, the story the attendants told was general and educational. That story was an effort to tell them what air conditioning is and what it could do for them if they had it. In other words there was an attempt, after a little education, to create a desire for the comforts of home-made weather.

It has been said often that theatres and air-cooled restaurants sold air conditioning to the American public. Undoubtedly, these establishments have aroused an interest in the subject and created a consciousness of the comfort that can be provided by artificial weather indoors. Generally speaking, however, they have helped to foster a somewhat inaccurate impression which those promoting air conditioning will have to correct. It is an idea or a belief held by many people that cooling alone is air conditioning. Many seem surprised when they are told that heating is just as important a part of air conditioning as cooling, and that humidity control, clean-

ing, and circulating the air are not easily dispensed with when complete air conditioning is under consideration.

Exhibitors at A Century of Progress have done much to carry the story of complete air conditioning to the millions who came to see the things that might be expected to make us healthier, happier, and more comfortable in the not-too-distant future. They have tried to educate and to create a desire for air conditioning's added

Classification	Per Cent of Total Inquiries for 1934	Percentage Increase 1934 over 1933
Oil Boiler Combination	16.35	89.6
Gas Boiler Combination	4.75	Not displayed in 1933
Cooling Equipment	26.7	184.2
Other Air Conditioning Equipment, including Central and Room Unit Air Conditioners, Humidifiers, Air Circulators, Hot Water Circulators, etc.	52.2	191.5
Total	100.0	178.4

comforts. They have tried to broaden the market that is to be reached by dealers and distributors, and to do as much of the missionary work as possible in that market.

There is still much to be done—education is needed. Along with the education goes the selling job, which, perhaps, can best be approached with the idea of selling some part of air conditioning, however small, that is most obviously needed by the prospective customer. After the first step toward a complete air conditioning system is made, the rest should be easier to take.

Service—

(Continued from Page 82)

that each circuit is correctly wired. For instance, make certain that the burner remains shut down when both the thermostat and pressurestat (or equivalent device) are simultaneously calling for the burner to shut down. If the burner starts under such a combination of control positions, the control circuits are incorrectly wired and the burner is not in a safe condition to operate.

A failure of this type was observed by the writer a few years ago. On this particular installation, due to faulty wiring, when the pressurestat and thermostat both called for a shutdown, the burner continued to operate until the safety-valve blew, and much of the water in the boiler escaped as steam. The ensuing condition of low water resulted in cracking of eight out of a total of nine sections of the boiler.

When electric-spark ignition is employed, check the gap between the electrodes to insure proper arcing. This gap, which should be from ⅛ to ¼ inch, is particularly important on burners employing constant ignition due to the tendency for more rapid wearing of the electrodes. Although failure of ignition should be cared for by the burner controls, the time element involved is such that a serious explosion can result from spraying oil into a hot furnace when the ignition is not operating.

All strainers in the oil suction and discharge lines

A Step Ahead!

BARBER-COLMAN
★ COMPENSATED CONTROL ★

This most recent development in residence temperature control equipment automatically compensates for all changes in heat loss from the building throughout the entire heating season. It is a big step ahead of anything of its kind heretofore developed.

Actuated by
TEMPERATURE...*Not Time*

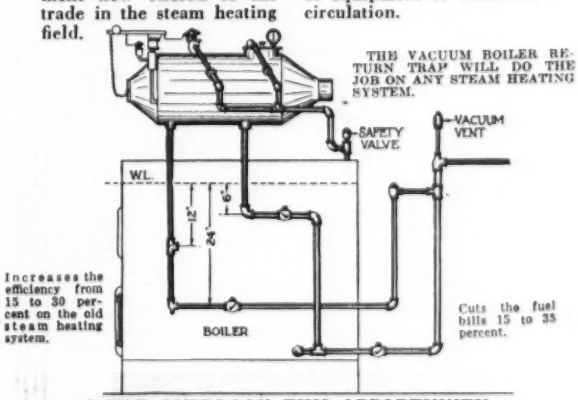
The COMPENSATED CONTROL makes use of a heater-type thermostat, but the action of the heater is controlled by changes in temperature of the heating medium (radiator or duct) and not by the time of operation of the automatic burner or damper regulator. It has wonderful profit possibilities for live heating dealers.

Send for Literature Today!
BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS

Let's Talk About
GETTING SOME OF THE PROFITS
from the New
MODERNIZATION CAMPAIGN

The marvelous automatic vacuum making equipment opens a larger field of sales possibilities than any equipment now offered to the trade in the steam heating field.

There are thousands of steam heating systems in old buildings that are badly in need of equipment to boost the circulation.


THE VACUUM BOILER RETURN TRAP WILL DO THE JOB ON ANY STEAM HEATING SYSTEM.
SAFETY VALVE
VACUUM VENT
W.L.
Increases the efficiency from 15 to 30 percent on the old steam heating system.
BOILER
Cuts the fuel bills 15 to 35 percent.

DON'T OVERLOOK THIS OPPORTUNITY

The automatic vacuum making tank is designed especially for modernizing work, and to correct faulty steam heating systems in thousands of old buildings.

Write for full information and illustrated literature

D. & T. MANUFACTURING CO.
3001-3009 LA SALLE ST., ST. LOUIS, MO.

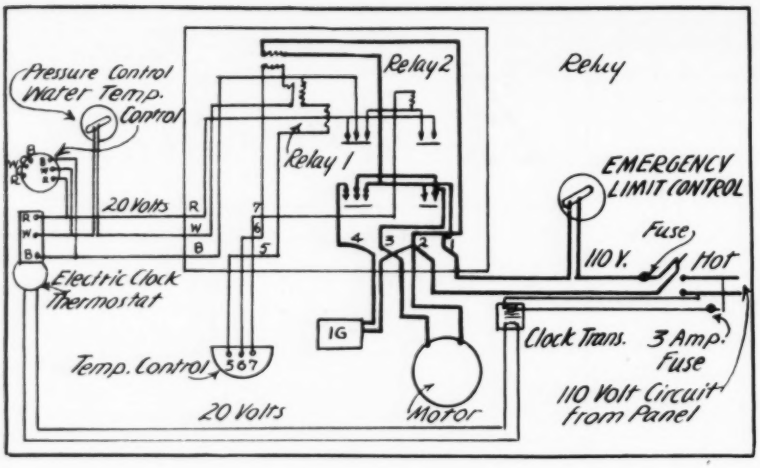


Fig. 3—This wiring diagram shows a control located in the line so that it will operate independently of the relays

should be cleaned at least once a year, or oftener if experience shows it desirable. The non-uniformity of some fuel-oils for domestic burners makes this an important item. Clogging or partial clogging of the strainers may be the cause of more serious trouble with a burner.

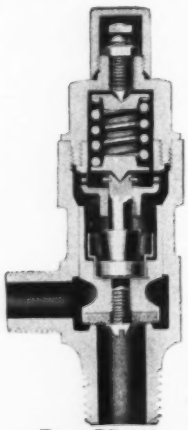
The gradual accumulation of sludge and sediment in the bottom of oil tanks may lead to repeated clogging of strainers, and also to stoppage of the strainer at the foot valve in the tank. This either deprives the burner of oil altogether, or causes an erratic oil supply. To eliminate this difficulty, particularly with the heavier oils, sludge and sediment should be removed once a year by pumping or manually cleaning the tank, and then flushing with light oil. Large dealers in fuel oil frequently supply this service gratis to their customers.

Many of the controls for automatic coal stokers and gas burners, such as the thermostat, aquastat, pressurestat, etc., are identical to those employed on oil burners. These controls should be checked at least once a year as described for oil burners.

The thermostatic pilot in general use on gas furnaces should be checcked carefully for correct operation by extinguishing the pilot flame when heat is not being called for, and then attempting to start the burners by raising the thermostat setting to call for heat. Care should be exercised in making this test so that a large quantity of unburned gas is not discharged into the furnace.

While a heating system requires special attention at particular periods as mentioned above, frequent attention should be given the system during its period of active operation, that is, throughout the heating season.

Prevents . . . . . Excessive Water Temperatures and Expansion Pressures



Type TP-102

The LOVEKIN Temperature Pressure Relief Valve

For use on closed systems. Opens and closes automatically to care for relief of pressures due to water expansion. Fusible disc softens only when temperatures occur which are liable to generate steam.

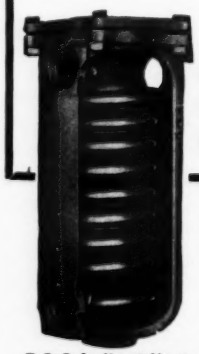
And remember, Kitson makes the well known line of "K-CO" Gas Service Brass Goods — Ground Key Cocks of all types and sizes and High Pressure Gas Meter and Service Valves. *Send for Literature and Prices*

KITSON CO.
WESTMORELAND & STOKLEY STS.
PHILADELPHIA PA.

"Since 1897"

SAVED 91%

OF DOMESTIC WATER HEATING COSTS AFTER INSTALLING A B&G INDIRECT SYSTEM



B & G Indirect Heater

Almost incredible—if we didn't have the accurately kept cost records! In the building with 30 apartments and restaurant where this B & G Indirect Water Heating System was installed, the first six months operation showed these amazing savings:

1933	1934
Cost of heating water with separate heater	Cost of heating water with B & G Heater
$332.55	$28.08

Net Saving $304.47 or 91%

B & G Twin Flow Control Valve

B & G Indirect Water Heating Systems are adaptable to either hand or automatically-fired steam or hot water heating boilers. The Triple Duty System, in particular, offers three outstanding benefits — constant domestic hot water, positive heat control and rapid heating. Completely automatic and trouble-free, this unit assures heat and hot water at less than the cost of heat alone. Write for full information.

B & G Booster

Sold by leading wholesalers of Plumbing and Heating Equipment

BELL & GOSSETT COMPANY
3000 WALLACE ST., CHICAGO

In operating steam and hot-water heating systems, it is important that an ample supply of water be available in the system at all times. Lack of sufficient water in a hot-water system will prevent proper circulation, while insufficient water supply in a steam boiler is apt to cause damage to the boiler.

Winter A. C.—

(Continued from Page 80)

fall off from 4,000 cigars per machine per day to 3,600 cigars per machine per day, a decrease of 10 per cent in production.

With complete air conditioning, instead of production falling off to 3,600 cigars per machine per day, the machines would be worked at full capacity.

Summarizing, the gross savings made from reduction in lost time, reduction in labor turnover, reduction in rejects and increase in production, amounted to $29,546.00 per year. The annual owning and operating costs for the refrigeration equipment was $6,175.00 per year.

According to the American Tobacco Company the installation has also resulted in a general improvement in the health of their employees which cannot be evaluated.

The beneficial effects of air conditioning as found in these studies, do not cover either enough subjects or sufficient time to be considered as conclusive. However, unless future studies show a very wide divergence the beneficial effect of air conditioning upon the health and efficiency of office workers is far in excess of that which would be economically necessary to justify the investment in air conditipning equipment.

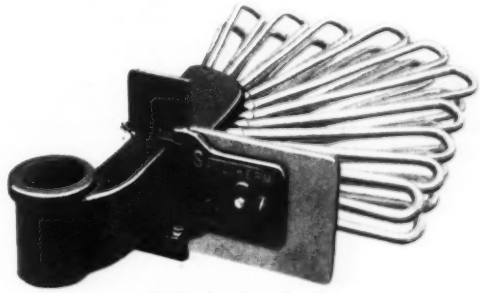
RESULTS OF INVESTIGATIONS

The investigations discussed in this article were undertaken to substantiate the following data.

The recent years have brought remarkable progress in air conditioning, not only in industrial applications and in the commercial field which in the past have constituted the principal role, but also as applied for human efficiency and health. The early industrial development beginning in 1905 was logical since the results of air conditioning in this field could be evaluated easily. Astute industrialists were quick to accept this innovation which resulted in a definite return on the investment.

Air conditioning for comfort was first used on a major scale by the motion picture theaters in 1922 and soon spread to other commercial enterprises such as stores, restaurants and office buildings. Here too the chief consideration was an adequate return on the investment. Meanwhile the beneficial effects of air conditioning upon health and efficiency of employees became apparent but could not be easily evaluated for office workers.

Statements by executives again and again tell of marked improvements due to air conditioning. M. M. Davidson, Chief Engineer of the Northern Trust Company, Chicago, states, "We are convinced that health and efficiency of our employees have shown a decided improvement." Dr. W. J. McConnell of the Metropoli-

"A BOILER WITHIN A BOILER"
Readily installed in automatically fired boilers using oil, gas, or anthracite coal.
MORE —Capacity & Efficiency
—Speed & Pep
—Comfort & Satisfaction
LESS —Heat Up the Chimney
—Temperature Fluctuations
—Fuel Consumed.

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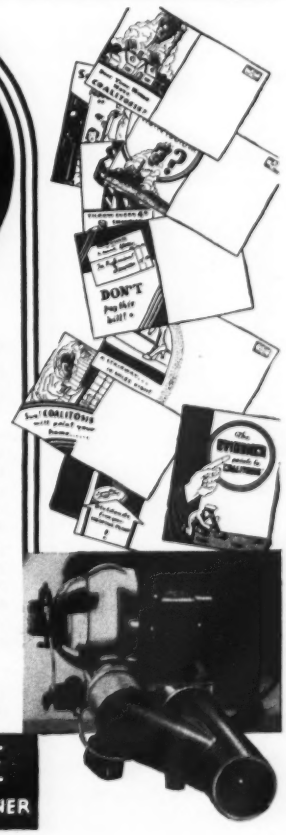
Turn Prospects Into Orders With Wayne's Coalitosis Campaign!
WAYNE Dealers enjoy a constant flow of live prospects developed by the Wayne Coalitosis Campaign. *Ten powerful folders pave the way. Then the Coalitosis Evidence Book shocks prospects into action!* You have more prospects selling Wayne Oil Burners. *Write today for information* about this powerful sales campaign that will increase your prestige and profit.
Wayne Oil Burner Corp.
602 Glasgow Ave., Fort Wayne, Ind.
WAYNE
THE WORLD'S FINEST OIL BURNER

tan Life Insurance Company, New York City, says, "A definite relationship between controlled atmospheric environments and physiological reactions are reflected in output energy and comfort experienced by workers." J. J. Falvey of the Chicago Title and Trust Company, writes in a letter, "It has done a great deal towards maintaining the efficiency of our employees."

Absences due to sickness have long been a problem in the efficient management of offices. Studies have been made by various groups to determine the extent of the time lost. Harold J. Young, Personnel Superintendent of the Employers' Group, Boston, states, "It has been estimated conservatively that the average number of days lost per working person in the United States over a period of years is seven days. This estimate is low since it includes every employee in every line of work whether commerce or industry." Mr. Young further states that in business such as he is interested in, in which two-thirds of the employees are women, the lost time per year is twelve days per person if no effort has been made toward reductions.

AVERAGE TIME LOSS FOR SICKNESS

Further information gathered from a pamphlet issued by the American Management Association indicates that lost time due to sickness varies from 3.5 days per person for insurance companies to 7 days per year for railroads with the latter being more nearly the average.

The medical profession has long contended that the majority of ills of the respiratory system such as cold, coughs, grippe, laryngitis and many similar ailments so common in winter are largely due to the methods we use in heating our buildings. The mucous membrane of the nose and throat secretes a fluid which under normal conditions adds moisture to the air before it reaches the lungs. Under abnormal conditions where the air is over-dry the mucous membrane is overtaxed and the nasal secretion is dried up. The result is a serious irritation to the tender membranes which causes swelling and inflammation. Thus the natural resistance has been broken down offering a harbor for the germs of the various respiratory diseases that ride on the dry particles of dust.

BENEFITS TO HAY FEVER SUFFERERS

In addition to the aforementioned ills of the respiratory system air conditioning has achieved remarkable results with hay fever, pollen-asthma and other diseases contracted by breathing pollen, dust and other particles. Experiments conducted by Dr. Leslie N. Gay during the summer of 1932 at Johns Hopkins Hospital show the effect of conditioned air upon hay-fever and pollen-asthma sufferers. These experiments were recorded in the May 6, 1933, issue of the Journal of the American Medical Association.

It was found that air conditioning effectively removed all pollen and dust from the air. Individuals suffering with hay-fever uncomplicated by asthma were relieved in from ten to fifteen minutes. "Within an hour the symptoms had entirely subsided, and after two hours the individuals who had previously been miserable had no evidence of hay fever," states Dr. Gay. "Patients who were suffering not only with hay fever, but also with asthma did not respond quite so rapidly, although within an hour there was a striking improvement in their general condition."

Several other medical investigations have been made and show considerable relief in many cases of hay fever and pollen-asthma.

Electricity—

(Continued from Page 88)

Assuming that a resistance block which has a resistance of 55.0 ohms is connected across a 220 volt line, the current that will flow through the resistance block is found as follows:

$$I = \frac{E}{R} = \frac{220}{55} = 4 \text{ amperes.}$$

The power in watts (W) in a direct current circuit is equal to the current in amperes (I) times the voltage in volts (E).

Watts or $W = E \times I$.

Thus, a watt is the power in a circuit which has a current of 1 ampere and a voltage difference of 1 volt. In a d.c. circuit, the power may be measured either by a wattmeter or a voltmeter and ammeter. If the voltmeter and ammeter are used the power (W) is obtained by multiplying the two readings, e. g., if $E = 220$, $I = 4$ amperes, $W = E \times I$ or $220 \times 4 = 880$ watts.

WATTS REPRESENT ENERGY

The watts or amount of energy in a circuit is also equal to the current squared times the resistance — $W = I^2 R$. If a resistance block is rated at 55 ohms resistance and the current is 4 amperes, $W = 4 \times 4 \times 55 = 880$ watts.

The only way to reduce the voltage of a d.c. line is by adding resistance. Assume that a given d.c. motor operates at 1150 R.p.m. with 220 volts and requires 4 amperes. It is desired to reduce the speed of the motor by reducing the applied voltage to 110 volts. We will assume that at this reduced voltage and speed the motor requires 2 amperes. This voltage reduction can be accomplished only in one way, that is, by inserting a resistance in the line in series with the motor, thus reducing the voltage applied to the motor to 110 volts.

The voltage drop across the resistance, the resistance required and the power wasted is found as follows:

Voltage drop $= E = 220 - 110 = 110$ volts.

Current flowing $= I = 2$ amp. (at reduced voltage).

Resistance required $= R = \frac{E}{I} = \frac{110}{2} = 55$ ohms.

Power dissipated in resistance $= W = E \times I = 110 \times 2 = 220$ watts or power in resistance $= W = I^2R = 2 \times 2 \times 55 = 220$ watts.

This 220 watts is entirely lost and must be dissipated by the resistance in the form of heat. It is very necessary, then, that the resistance block or rheostat be placed so that it will be cooled by the air passing over it or it will burn out. A rheostat is the same as a resistance

block except that it is usually so arranged that the amount of resistance in the line may be easily changed.

Mr. Lucas knocked the ash from his cigar and said, "Now let me see that I understand you. I have an electric radiant heater which is rated at 1100 watts. I'll figure how much current it will draw if I install it on a 110 volt d.c. line. W = 1100 and E is 110. Then (I) will be equal to W or 1100 = 10. This 1100 watt heater would draw 10 amp. on direct current, wouldn't it?"

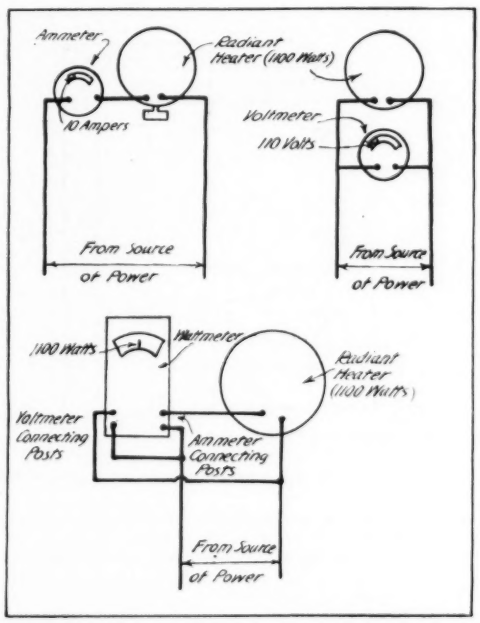

Fig. 5—This shows typical connections of an ammeter, a voltmeter, and a wattmeter in a direct current circuit. The readings apply to the example worked out by Mr. Lucas

"Yes, you are right. Can you figure the resistance?"

"I think so. You said that resistance equals voltage divided by the current. The resistance, then, would be 110 = 11 ohms. All right?"

"Absolutely. You understand that part, undoubtedly. D. C. service is usually supplied over two wires at voltages from 110 to 125 and from 220 to 250 volts. Sometimes three wire D.C. service is found, consisting of two line wires (usually the outside ones) and one central wire which is usually the center. The voltage difference from the neutral wire to either one of the outside wires is usually 110 volts while the voltage difference from one outside wire to the other outside wire is usually 220 volts. This is known as three wire D.C. service. See Fig. 3.

The power companies supplying this service usually require that all lighting loads, etc. be taken off at 110 volts, from neutral to one outside wire and that all power loads, motors, etc., be taken off at 220 volts from one outside wire to the other outside wire.

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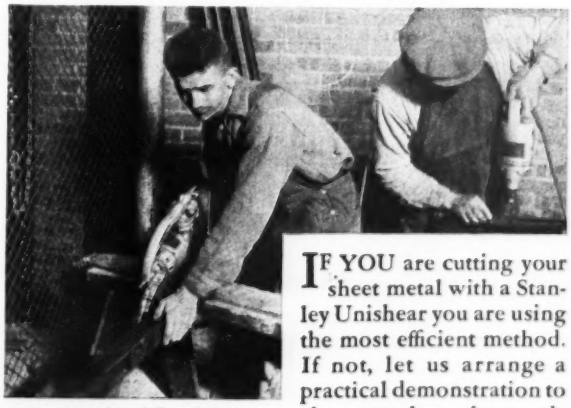

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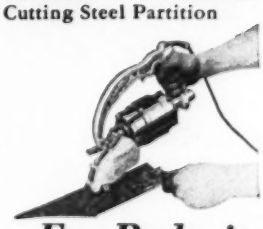

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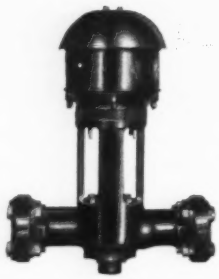

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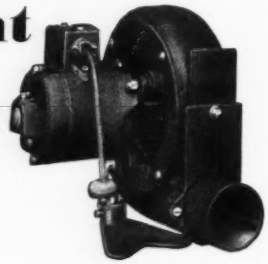

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Shall we talk about direct current motors now? You said that everything in your line used a motor and I'm sure you are right in feeling that if you knew how they operate you would be a long way in understanding the equipment.

Everyone who has made experiments with a magnet has noticed how iron filings or iron chips will be acted upon by a magnet if they are close enough to it. The iron or steel filings or chips will try to move. A magnet will not affect a copper wire, though, unless there is a current flowing through it, in which case the wire is affected just as if it were made of steel or iron.

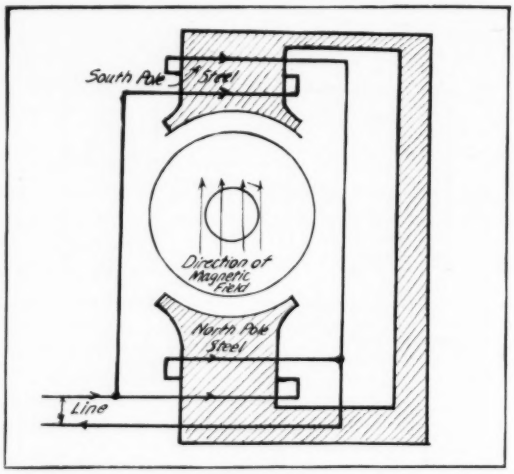

Fig. 6—By the proper arrangement of the wire around a piece of iron or steel, it is possible to form poles similar to the north and south poles of a common magnet

If a wire which is carrying a direct current is placed in a magnetic field produced by a magnet the wire will be subjected to a force that will tend to move the wire, that is, the wire will be pulled in some direction. This direction depends on the direction of flow of current in the wire and the direction of the magnetic field around the wire. When the current is reversed, the pull on the wire will be reversed, if the magnetic field remains unchanged." See Fig. 4.

"Does this mean that if I were to hold a wire which is carrying a direct current near a horseshoe magnet that it would try to move?"

"Yes."

"And if I reversed the current, would the wire try to move in the opposite direction?"

"Yes. It would be possible to build a direct current motor by using a horseshoe magnet, but its size would be limited. A magnetic field is set up around any wire carrying current similar to the magnetic field set up by a magnet. By the proper arrangement of the wire around a piece of iron or steel it is possible to form poles similar to the north and south poles of a magnet. In this way a magnet of any size may be formed. See Fig. 6. The windings which form the magnet in a motor are called the field windings. The windings which are made to move are called the armature windings.

Alt—

(Continued from Page 92)

cooling is typified in the air washer supplied with refrigerated water, with street main water, or with cold well water.

Cooling the air is accompanied with a change in both the absolute humidity, or the number of grains of moisture in a pound of air, and the relative humidity due to the change both in the temperature and the absolute humidity. In the first process of *surface* cooling,

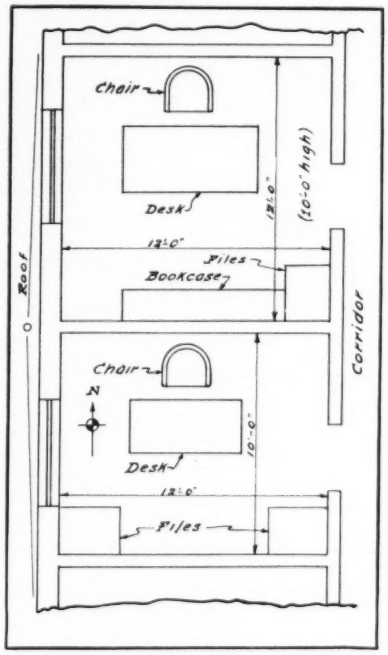

Fig. 3—It is desired to cool two adjacent offices arranged as shown here

the air in passing over the cold surface of the cooling element through the interior of which cold water or a refrigerant is circulated, deposits a part of its moisture on the cooling surface in the shape of condensation or "sweat" (such as occurs in the unit air conditioner and makes a drip pan and drain pipe necessary) or in the shape of frost if the refrigerant temperature is below 32 deg. Fahr. (such as occurs in the coils of an electric refrigerator to such an extent as to require "defrosting" at certain intervals).

In the second process of cooling by *evaporation*, a certain portion of the spray water is evaporated this water requiring approximately 1,000 Btu. per pound taken up by the air (exactly 971.7 Btu. per lb.) and this heat is supplied by the sensible heat in the air thus reducing the air temperature but adding to the absolute humidity and changing the relative humidity. It is impossible to cool saturated air by this means as saturated air can absorb no more moisture and therefore there is no evaporation possible and, consequently,

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no cooling. This method is particularly successful where the air is unusually dry and becomes less and less effective as the wet bulb temperature of the incoming air rises toward the dry bulb temperature.

In contact *cooling* the air condition has no bearing on the cooling or dehumidifying carried out—that is within reasonable limits and to meet any requirement of ordi-

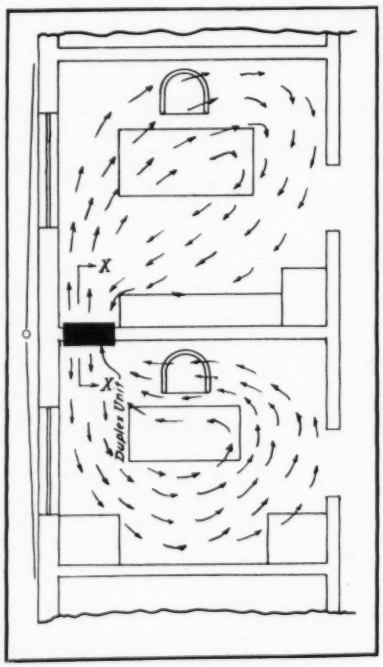

Fig. 4—Circulation in the two rooms by means of the one unit is shown in this plan drawing

nary comfort air conditioning. The temperature of the spray water is adjusted to whatever temperature is needed to give the desired number of grains per pound in the supply air to the room and the air simply is cooled to the temperature where the number of grains per pound *saturated* is the same as the number desired. As the air at that temperature can carry no more moisture than its saturated capacity, all of the excess moisture is precipitated—or squeezed out—in the air washer and is added to the wash water overflowing out of the air washer through the regular overflow provided. It is of course impossible to reduce the air below certain limits and in the case of refrigerated water this is limited by the freezing point of the water (32 deg. Fahr.) while in the case of using water from the street mains, the limit is established by the temperature of the water procurable and in the case of well water the same limitation holds. Usually refrigerated water is employed as this water has a temperature range well below any low limit required in air conditioning which generally is considered as between 45 deg. Fahr. and 50 deg. Fahr., the air coming out of the washer a few degrees higher than the water.

PROBLEM NO. 6

It is desired to cool two adjacent offices arranged in the manner shown in Fig. 3; what would be a simple solution of this problem?

SOLUTION

In this problem it will be most simple to use a single unit of one of the larger sizes set in the partition between the two offices and arranged to recirculate from, and discharge to, both of the offices. This may be accomplished by installing a unit in the position shown in Fig. 4, which happens to come conveniently near a drain on the roof outside so that there will be little difficulty involved in disposing of the condensation water. The offices would be calculated the same as previously explained for the single office except that the partition between the two offices would not be a warm partition in either case having—as it has—a cooled and conditioned room on each side. Therefore this wall between the two offices to be conditioned may be omitted from the calculations.

Experience in office work has shown that the reduction in load by the omission of this dividing wall makes it possible to use a unit of about a ton-and-a-quarter to a ton-and-a-half capacity depending on the size of the offices and this may be arranged as shown in the cross section given in Fig. 5. In general the air movement

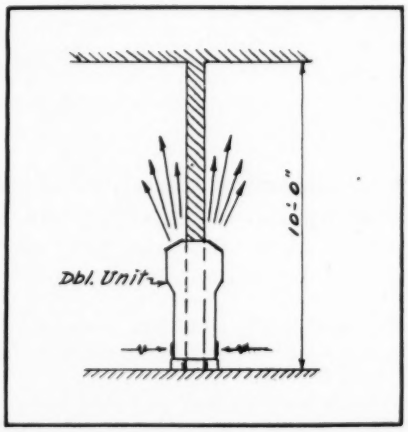

Fig. 5—The arrangement of the unit to serve both rooms is indicated in this cross section elevation drawing

will be toward the ceiling over the unit, mushrooming out at the ceiling and dropping in various parts of the room where it sweeps back toward the unit recirculation connection as it falls toward the floor. This results in bringing practically the entire room in the sweep of the air movement and results in much more equal temperatures and conditions than happens when part of the room is "pocketed" or "short circuited."

As far as the location of the refrigerating machine is concerned, the remarks and solutions shown in earlier articles of this series for the single office apply with equal force for the two offices, the only difference in the two propositions being in the use of a slightly larger unit and one which draws from, and supplies to, each office.

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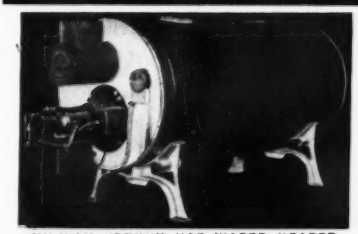

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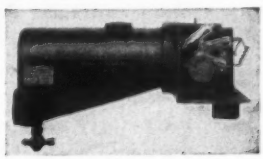

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Bulletin Describes Device for Water Heating Systems

The Janette Manufacturing Company of Chicago has issued a bulletin, 232-H., describing and illustrating its device for the forced circulation of water in hot water heating systems. This device is designed to lower fuel costs and to bring the house up to a comfortable temperature quickly.

Folder Describes Large Size Air Conditioning Equipment

The Air Conditioning Division of the Savage Arms Corporation of New York City has just issued a folder illustrating and describing its larger models of air conditioning equipment. The folder stresses the point that these air conditioners operate quietly. Sound has been reduced to a minimum to provide acceptable operation in a residence, hospital or other space where extremely quiet operation is essential to satisfactory performance.

Helping to Sell Automatic Heat and Air Conditioning

Minneapolis-Honeywell Regulator Company of Minneapolis, Minn., has issued a broadside, 24x19 in. in size, announcing that beginning in September this concern will inaugurate a campaign designed to help heating and air conditioning contractors to sell automatic heating and air conditioning. In this campaign advertising space will be used in trade and professional publications, newspapers, class magazines and mass magazines, to such a degree that all buying factors will be reached. The campaign will emphasize the vital necessity of considering automatic control first in designing or planning an air conditioning system.

Surface Combustion Corporation Secures Exemption from NRA Code

Surface Combustion Corporation of Toledo, Ohio, has been granted an exemption from Article III, Section 2, of the Code of Fair Competition for the Industrial Furnace Manufacturing Industry, provided that this company comply with the following which is in lieu of the above-named section.

The maximum hours in Section I shall not apply during any period in which a concentrated demand on the industry shall place an unusual or temporary burden upon its production facilities. During such periods overtime shall not exceed eight (8) hours in any one week nor forty-eight (48) hours in any six (6) months; provided, however, that in any such special case at least one and one-half (1½) times the employe's normal rate shall be paid for all hours worked in excess of eight (8) hours per day or forty hours per week. All such cases of overtime shall be reported to the Code Authority."

Appointed Distributors for Republic Steel Corp.

Buhl Sons Company of Detroit, Mich., has just been appointed distributors of Toncan iron in that city and its vicinity, according to announcement by N. J. Clarke, vice president in charge of sales for the Republic Steel Corporation, Youngstown, Ohio.

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McDonnell Boiler Water Level Controls have been carefully designed to meet these specifications as well as all other codes or recommendations. Check the specifications in the Underwriters recommendation against the features of the No. 47-2 Combined Safety Feeder and Low Water Cut-off illustrated below, and you will find that No. 47-2 and all other McDonnell feeder-cut-off combinations conform to the letter of the specifications—in fact more than conform!

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Emergency Low Water Feeders

After an exhaustive investigation of emergency low water feeders for cast iron and steel heating boilers, the Engineers Conference of the Boiler and Machinery Department of the National Bureau of Casualty and Surety Underwriters, New York, has prepared standard requirements for the construction of such emergency low water feeders which it recommends to manufacturers and users of such equipment.

This, it is announced, is in no sense a definite ruling but represents recommendations based upon the results of many years of broad experience and the investigation of the cause of a large number of failures and accidents. The recommendations are as follows:

1. The water inlet valve to be separate from the float chamber and sufficiently isolated or insulated from the heat to insure a temperature at which scale will not be deposited.
2. The float to be of rugged construction and to have a displacement equivalent to a sphere 5 inches in diameter.
3. The bearings, pins, water valves and their seats and other moving parts to be of non-corrosive material.
4. All parts to be readily accessible for inspection, cleaning and repair.
5. To be provided with a blow-off connection to the float chamber to facilitate the removal of deposit in the float chamber, and to permit testing the device without lowering the water level in the boiler. Such blow-off connection should be either an independent connection to the float chamber or a connection in the water line to the feeder immediately below the float chamber.
6. The device to be set to function when the water level in the boiler is 1 inch above the bottom of the gage glass, assuming that the gage glass is set at the proper level and to be of sufficient capacity to maintain that water level when the return valve or valves are closed and the boiler is operated under the most forced conditions of firing.
7. The device to be so connected that it will feed through the regular feed connection and not the water column.

The recommendations as explained by J. P. H. de Windt, manager of the Boiler and Machinery Department of the National Bureau, relate to those emergency low water feeders installed on boilers which are used for the heating of residences, apartment houses, office and similar buildings. Such boilers are of the type where it is desired to feed the water to the boilers automatically, and to eliminate the possibility of lime or sediment deposit in the water feeder which render the same inoperative and thus cause the cracking of sections or destruction of boilers. It is also recommended that the cast iron or steel heating boilers fired by oil burners or stokers be equipped with low water cut-outs in addition to the low water feeders.

The article above is reproduced by permission from the editorial pages of July, 1934 Boiler Maker and Plate Fabricator. The same report has appeared in a number of business publications.

McDONNELL *Boiler Water Level* CONTROL

"Doing One Thing Well"

SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Eastern Supply Association Announces Date for Fall Convention

The Eastern Supply Association will hold its fall convention at the Hotel Astor, New York City, on Wednesday, October 10, according to official call just issued by President J. M. Chaplain and Secretary Frank S. Hanley. Both morning and afternoon sessions will be held in the North Ballroom, Eighth Floor, Hotel Astor.

The program, which is now being arranged, will be in line with the trend in matters of vital interest to the plumbing and heating industry. With this in mind, arrangements have been made for the attendance of Julian M. Gerard, regional director of the Better Housing Division of the Federal Housing Administration.

The Federal Housing Plan will be of lasting benefit to the industry because it will not only promote the sale of plumbing and heating products, but through the tremendous publicity this undertaking will receive, the public will become plumbing and heating conscious and learn to improve their homes and apartments through the installation of the products of this industry.

Central Western Wholesalers Discuss Code Program

Members of the Central Western Wholesalers Association met in Minneapolis, Minn., on Sept. 3. The meeting drew representatives of wholesalers from Omaha, Nebr.; Sioux City, Mason City, Fort Dodge, Des Moines, Dubuque, Davenport and Cedar Rapids, Iowa; La Crosse and Eau Claire, Wisc.; Sioux Falls, S. Dak.; Duluth, Minneapolis and St. Paul, Minn.

The wholesalers code was gone over and discussed section by section and it was the consensus of opinion that the permanent code authority should be organized with members selected from, and to represent, the various geographical districts now represented on the joint national committee.

A review of the work of the association during the past year brought out the unanimous judgment of those present that the association should carry on with increased activities on behalf of the wholesale division of the industry.

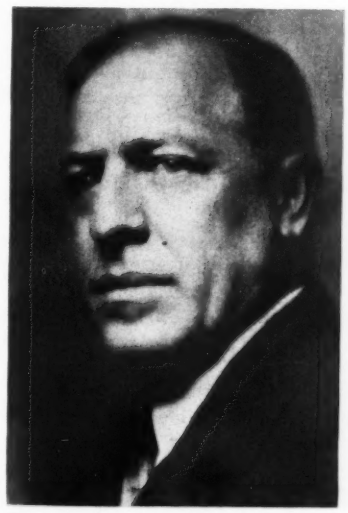
Resolutions on the death of John M. McDonald Sr. of Dubuque, Iowa, E. C. Nelson of Wigman Co., Sioux City, Iowa, and in appreciation of the work of W. J. Spillane as chairman of the joint national committee on the code were adopted. Appreciation also was expressed to the association's committee which has been working on the code.

The next meeting, subject to the call of the president, will probably be in Omaha, Neb.

The officers of this association are E. I. Leighton, president, Fort Dodge, Iowa; Bernard Kurtz, vice-president, Des Moines, Iowa; D. R. Thomas, Minneapolis, secretary-treasurer.

Crane Co. Promotes P. R. Mork and He Comes to Chicago

P. R. Mork, vice-president in charge of the New York territory of Crane Co. with headquarters at the company's New York Branch, has been transferred to the company's general office in Chicago, where he will serve as vice-president in charge of sales, assuming the duties of Vice-President H. W. Seymour, who is on leave of absence due to ill health. P. R. Berryman, formerly vice-president of the Trenton Potteries, has succeeded Mr. Mork as manager of the New York Branch and associate branches of Crane Co. in the Greater New York area. He will continue as a member of the board of the Trenton Potteries Co. The territory over which Mr. Berryman will have supervision extends from Newark, N. J., to New Haven, Conn. Mr. Berryman has been with the Trenton Potteries Company 13 years. He came to Trenton from Paris, France, where he had been associated with the Paris branch of Crane Company. He went to Paris from Chicago.



P. R. Mork

On the occasion of his departure from Trenton, the force of the Trenton Potteries Co. gave a farewell dinner in his honor and presented him with a sterling silver vase, properly inscribed. Several talks were given telling of the high esteem in which Mr. Berryman is held by the officers and the employees of the Potteries Co., including one by John A. Campbell, chairman of the board, and one by Elzey S. Aitken, both of the Trenton Potteries Company.

Mueller Brass Co. Makes Sales Arrangement with Scovill Mfg. Co.

Mueller Brass Company of Port Huron, Mich., has just announced that it has made a sales arrangement with the Scovill Manufacturing Company of Waterbury, Conn., by which the latter company will sell Streamline fittings, made by Mueller Brass Co., in conjunction with copper pipe of its own manufacture. The Scovill Mfg. Co.'s pipe and tubes are made in such a way that they fit these fittings, a fact which induced the Mueller Brass Co. to make this arrangement. A similar arrangement was made some time ago with the Revere Copper and Brass Incorporated, New York City.

Mueller Brass Company has also a large list of licensees, who have made arrangements to use its patented joint, either in the manufacture of some of their own products, or to sell Mueller fittings to go with their pipe.

C. M. Parker, Former President of American Radiator, Dies

Charles M. Parker of New York and Los Angeles, former president of the American Radiator Company and son of George W. Parker, one of the founders of that company, died September 26 in Los Angeles at the age of 66 years. Death was due to a brain hemorrhage following a minor operation.

Following his graduation from Rensselaer Polytechnic Institute in 1889, Mr. Parker was associated with his father in the management of the St. Louis Radiator Company. That company was taken over in 1899 by the American Radiator Company, and Mr. Parker entered the employ of the latter company. After serving for a period on the operating board in charge of manufacturing, Mr. Parker went to Germany where he was managing director of the Nationale Radiator Gesellschaft M. B. H., the German affiliate of American Radiator Co.

Returning to this country in 1905, he became treasurer of the American company, which position he held until 1914. During the World War he was stationed in England as a major in the Air Division of the United States Army. He then traveled extensively. From 1923 until 1924 he was a member of the executive committee of the company, becoming president in the latter year and holding that position until 1926 when he resigned, but retained membership on the executive committee, and continued as a director of the company until the time of his death.

Gerstein & Cooper Co. Reports Continued Demand for Its Products

The Gerstein & Cooper Company, 1-3 West Third Street, Boston, Mass., manufacturers of range boilers, storage tanks, etc., reports continued demand for its products. Charles Gerstein points out that there has been some confusion because of a similarity in name with another company which recently went into bankruptcy and emphasizes that the Gerstein & Cooper Company has no connection with any other company now in financial difficulties.

N. E. Wholesalers Discuss Housing and Codes

The national housing act, the code of fair competition, and sales and merchandising plans were the main topics considered at the seventh convention of the Plumbing and Heating Wholesalers of New England, Inc., which was held on Monday, September 17, at the Mount Washington Hotel, Bretton Woods, in the White Mountains, N. H.

President M. W. Dennison opened the meeting with an address of welcome and presided over the sessions.

H. M. Reed, president of the Standard Sanitary Manufacturing Company of Pittsburgh, Pa., in his address to the convention explained the new sales and merchandising plan, immediately in effect, which would enable wholesalers to meet the selling price of the d.-t.-u. and mail order houses. He closed by stating that detailed information about this plan would also be in all wholesalers' mail upon their return to their offices.

Congressman Eugene Reed of New Hampshire spoke in place of Chas. A. Birmingham, regional administrator of the Federal Housing Administration, who was prevented from being present. Mr. Reed serves as regional director in New Hampshire, and his address was entitled "The National Housing Act and Its Effect on Your Business." For the purpose of stressing the untold opportunities for business made possible under the national housing act, Mr. Reed gave a visomatic presentation with definite illustrations and suggestions for securing this business. This presentation tended to prove, he said, that any plumbing and heating contractor can find enough business in his neighbors' houses to keep him busy for a long while. But it is up to the plumbing and heating contractor, the carpenter and the general contractor, he stated, to go out and ring door bells and tell his neighbors and customers just how they can get their repair jobs done.

In the discussions of the iron and steel code, George F. Elliott, manager of the Boston branch of Walworth Co., stated that the handling and selling of steel pipe had now become more stabilized, and that the steel code has been of great benefit to the trade.

Boyd Watson of Spang, Chalfant & Co., Inc., Pittsburgh, Pa., gave an outline of what the code has done and its effect upon the operation of his company's business.

George Satterwaite, representative of the American Iron and Steel Institute, speaking unofficially, explained the operation of the steel code and its definite value, and he made specific references to several cases of violation where penalties were imposed, in order to show that this code, although not 100 per cent perfect, had pretty sharp teeth. He also referred to some changes that have been made in this code, one of the latest of these being a new jobbers' arrangement, which will be known as Bulletin No. 7. This plan allows wholesalers under certain circumstances to pick orders at small discounts. Wholesalers of steel pipe must have a thorough understanding of their division of the code, inasmuch as no excuse is recognized in any violation of code prices.

M. J. Beirn of the American Radiator Company gave a brief discussion on what the boiler and radiator manufacturers are doing to make their code of real value.

George W. Denny, president-commissioner of the Valve & Fitting Institute, outlined the activities of his organization. He reported that the Institute was recently able to get a ruling from the Secretary of the Treasury calling for a duty of 45 per cent on all imports of fittings. This action was taken to prevent the influx into this country of Japanese fittings, which have been sold to the trade at about 40 to 45 per cent below the prices of domestic fittings. As a result of this new duty, business in the fittings industry is now better than it has been at any time during the last eighteen months.

Eagle-Picher Sales Company Has Been Organized

The Eagle-Picher Sales Company, a hundred per cent owned subsidiary of the Eagle-Picher Lead Company, has been organized and has taken over the sales and distribution of products manufactured by the Eagle-Picher Lead Company of Cincinnati, Ohio. The Eagle-Picher Sales Company will have the same sales personnel as that formerly employed by the Eagle-Picher Lead Co. and there will be no change in the company's service. The officers of the new company are: President, A. E. Bendelari; vice presidents: Frederick Hertenstein, F. W. Potts, W. E. Maston, John R. McGregor and R. M. Roosevelt; secretary and treasurer, Joseph Hammel, Jr., and assistant treasurer, C. A. Geist.

National Radiator Corp. Forms Heating Credit Plan

National Radiator Corporation of Johnstown, Pa., has just announced the inauguration of an installment-payment credit plan, patterned after the Federal Housing Act and offering three-year terms without initial payments to home owners in connection with the installation of heating equipment.

The plan provides for personal character loans on heating installations ranging from $100 to $2,000 in cost. Carrying charges are to be similar to those in effect under the provisions of the Federal housing act.

According to Robert S. Waters, president, the plan aims to stimulate sales of heating equipment by enabling prospective purchasers to arrange for liberal financing within the industry. The credit arrangements will be between buyers and the manufacturer, with contractors responsible only for guaranteeing the quality of the work involved.

Revere Copper & Brass, Inc., Opens Office in Grand Rapids

The Michigan Division of the Revere Copper and Brass Incorporated has opened an office at 922-23 Grand Rapids National Bank Building, Grand Rapids, Mich., with David T. Applebee in charge as district manager.

Secures Exclusive Right to Manufacture Gas Stove Manifold of Rolled Pipe

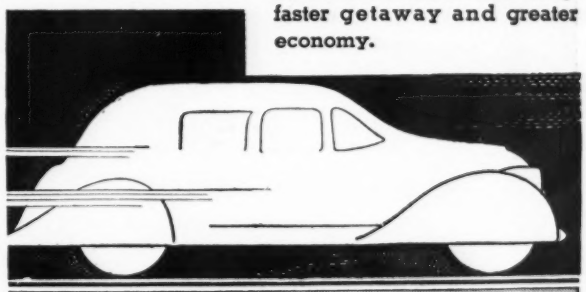
The Thomas Devlin Manufacturing Company of Burlington, N. J., manufacturer of fittings and nipples, announces that it has secured the exclusive license in the United States to manufacture a patented gas stove manifold.

Appointed Sales Representatives for Maid-O'-Mist, Inc.

Wm. J. Woolley, president of Maid-O'-Mist, Inc., of Chicago, announces the appointments of the following representatives and their respective territories:

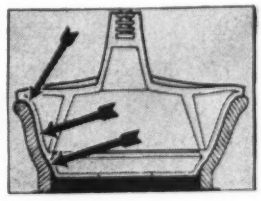
S. A. George, 624 St. Clair Ave., N. W., Cleveland, Ohio, Northern Ohio district. Derbyshire, Mack, & Morgan, Inc., Delaware Ave. and South St., Philadelphia, Pa., Eastern Pennsylvania, Southern New Jersey, Maryland, District of Columbia, Virginia and Delaware. John J. Landers, 170 Franklin St., Buffalo, N. Y., Buffalo territory. T-D Specialty Corporation, 300 Rutherford Ave., Boston, Mass., New England States. Allen D. Wright, 12795 Birwood Ave., Detroit, Mich., State of Michigan. Howard B. Stitt, 5355 Broadway, Indianapolis, Ind., State of Indiana. Charles Homan, 3202 Jefferson Ave., Cincinnati, Ohio, Cincinnati, Ohio, and Kentucky. Jas. F. Flavelle, 7 North Third St., Marshalltown, Iowa, State of Iowa. George C. Rugg, St. Paul, Minn., States of Minnesota, South Dakota and North Dakota.

FORM of today's smart automobiles is providing greater speed, far more comfortable motoring, faster getaway and greater economy.



SUPERIOR FORM ...SUPERIOR PERFORMANCE!

FORM of the TRIPLE SEAL is likewise providing entirely new tank ball PerFORMance. Leaks and noise are completely eliminated, backed by a FOUR-YEAR guarantee.



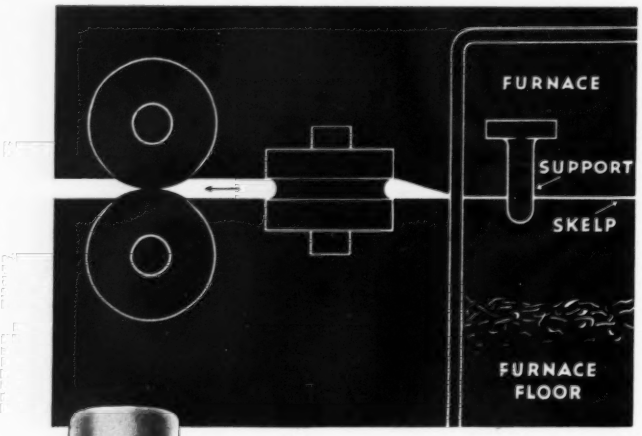
The FORM of the TRIPLE SEAL breaks away entirely from tank ball precedent. And as a result the TRIPLE SEAL offers PerFORMance far ahead of the field. It offers FOUR definite advantages:

1. TRIPLE SEAL provides three watertight seals ... three-way protection against leaks. 2. The TRIPLE SEAL is also made of live, pliable rubber that's soft enough to fit tightly even when the valve seat is badly corroded and pitted. 3. The ball is light and buoyant, allowing the tank to empty completely. 4. The neck of the ball is flexible, permitting a watertight seal even when the rod isn't straight.

Feature the TRIPLE SEAL for the extra profit and the added customer goodwill it offers!

RADIATOR SPECIALTY COMPANY
CHARLOTTE, N. C.
Los Angeles, Calif. Toronto, Canada
Exports: 280 Broadway, New York City

TRIPLE SEAL
TANK BALL



EVERY LENGTH IS

PERFECTLY

WELDED

The exclusive, scientifically-controlled "continuous process," by which all Fretz-Moon Pipe is made, is radically different from any other method of making pipe—hence, Fretz-Moon Pipe offers advantages found in no other steel pipe.

Take the weld, for instance. As the steel skelp is carried through the specially-designed furnace above the floor, it is not contaminated by sand, scale or other foreign matter, and the edges are clean. Upon leaving the furnace, it is slightly below the temperature required for perfect welding, but as it passes through the forming rolls, a jet of air blown on the edges of the skelp raises the temperature of the edges to the desired point and at the same time cleans the edges from all scale.

Immediately the skelp passes through the welding rolls and becomes perfectly welded pipe. Because it is roll-welded and not drawn through a welding bell, every length of Fretz-Moon Pipe is uniform and sound. Because it is uniformly heated, it is free from hard or "burnt" spots.

The complete story of this better steel pipe is available in an illustrated booklet. Write for a copy.

FRETZ-MOON TUBE CO., INC.
BUTLER, PENNA.

FRETZ-MOON
PIPE
BLACK AND GALVANIZED

In a Personal Way

H. W. Rinearson, formerly vice president of the A. M. Byers Company of Pittsburgh, Pa., has been elected president of the Shaw-Perkins Manufacturing Company of Pittsburgh. The offices of the latter concern are located in the Oliver Building.

Frederick H. Tweed, treasurer, general manager and founder of The Dole Valve Company, Chicago, has just returned from a trip to New York City where he was the guest of honor of the New York Rotary Club at its Twenty-fifty anniversary. It was Mr. Tweed who a quarter of a century ago went from Chicago, the home of Rotary, to New York City and organized the New York Rotary Club. Mr. Tweed is a life member of Rotary and one of the best-known Rotarians in the country.

M. R. Grover, who recently joined the T-D Specialty Corporation at 300 Rutherford Avenue, Boston, Mass., has just been elected treasurer of this concern. Mr. Grover, better known as Cal Grover, has a large acquaintanceship in the trade in New England, having spent 10 years with American Radiator Co. covering New England and Baltimore and five years with National Radiator Corporation covering New England territory.

M. R. Grover

Walter F. Johnson, manager of the Buffalo, N. Y., branch of American Radiator Company from 1928 to 1934, has been appointed manager of the Newark, N. J., office of the same concern, and the transfer has taken place.

L. B. Jenks, formerly for many years western manager in Chicago for the Youngstown Sheet & Tube Company of Youngstown, Ohio, and the Pittsburgh Valve & Fittings Co. of Pittsburgh, Pa., is rapidly regaining his health after having been confined to his rooms at the Auditorium Hotel in Chicago for several weeks. Mr. Jenks was one of the best known men in the plumbing and heating trade some years ago, and his friends will be glad to hear the news of his recovery.

W. J. Bailey, president of the Day and Night Water Heater Co., Ltd., of Monrovia, Calif., was elected director of the Pacific Coast Gas Association at its annual convention, held September 11-13 in Del Monte, Calif. Mr. Bailey will serve two years.

Joseph Grotte is now covering Philadelphia, Baltimore and Washington, D. C., for the Fisher Brass Company of Marysville, Ohio.

John L. Hollop, formerly with the Hunting Co. of Auburn and Rochester, N. Y., has joined the sales force of Hart & Crouse Co., Inc., of Utica, New York, and will cover part of the central and western sections of the state.

H. S. McPherson has just been appointed manager of mechanical sales in the St. Louis District for United States Rubber Products, Inc., New York City, according to announcement issued by H. A. Everlien, sales manager of the Mechanical Goods Division. Mr. McPherson, who has been with the company for more than 15 years, was formerly in charge of mechanical sales in the Boston District, and prior to that he held important posts in the export department in Australia, South America and the Far East. W. G. Mueller, who has been with the company for more than 25 years, will succeed Mr. McPherson as manager of mechanical sales in the Boston Branch.

GEORGE H. DERBYSHIRE of Derbyshire, Mack & Morgan, manufacturers' agents in Philadelphia, Pa., was elected vice-president of the Pennsylvania State Association of Boroughs at its recent annual meeting in Stroudsburg, Pa.

A. HEDEMAN, of the American Cooler Co., manufacturer of beer dispensing equipment, New York, started on Sept. 4 a 10,000-mile automobile trip which will take him to 175 cities in the United States and to some points in South America. He will visit wholesalers as well as the city health departments. His decision to make the trip resulted from the success of an earlier trip covering important trade centers in the eastern part of the country.

LEON B. HAMPTON, manager of the Salt Lake City, Utah, branch of Crane Company, has been appointed a member of the committee to promote remodeling and modernization of homes in Salt Lake City, under the Federal Housing Act. Mr. Hampton is one of the most active civic workers in the industry in that state, being a leading member of the chamber of commerce. He also served as president of the recent Modernization Exposition in that city.

MICHAEL MERCURY, formerly connected with the heating sales department of the Weil-McLain Co. of Chicago, has just been appointed representative in Chicago and vicinity for the Watts Regulator Company of Lawrence, Mass., and the Radiator Specialty Company of Charlotte, N. C.

R. L. TOWNE, formerly with DOMESTIC ENGINEERING, and more recently with the Stack-Goble Advertising Agencies, has joined the advertising staff of the Trane Company, manufacturers of heating and air-conditioning equipment. Mr. Towne will take up his activities in the home office at La Crosse, Wis.

J. S. MALONE has just been appointed sales representative for the Hoffman Specialty Company of Waterbury, Conn., to cover St. Louis territory. He will make his headquarters at 7124 Waterman Avenue, St. Louis, Mo.

Michigan Trade Golfers Entertained by Oscar Mueller

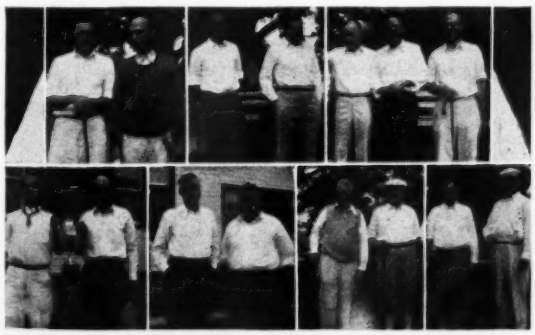
The Michigan Trade Golf Association held its September tournament on the beautiful links of the Black River Country Club as the guests of Oscar Mueller, president of the Mueller Brass Co. of Port Huron, Mich. The fairways and greens were in excellent condition, and although the weather was threatening and the course is sixty miles from Detroit, seventeen members were present.

H. O. Nelson won first prize, a brief case, with a score of 94—27—67. William Brown won second prize, copper pitcher and mugs, with a score of 95—18—77. Third prize, six golf balls, went to E. Anderson, his score being 85—8—77.

Kickers' prizes, 3 golf balls each, were awarded to: H. W. Booth, 92—14—78; R. K. Milward, 93—14—79; Ira R. Kanack, 101—21—80; Wm. Old, 139 gross.

The other players and their scores were: Edw. Glanz, 96—18—78; C. E. Elliott, 101—20—81; H. J. Eitel, 121—26—95; J. E. McFate, 99—20—79; J. B. Whiteford, 95—17—78; Gordon Godley, 105 gross; C. E. Berry, 101 gross; D. M. Kenney (guest), 114 gross; M. B. Allen, no card, and J. Gamber, no card.

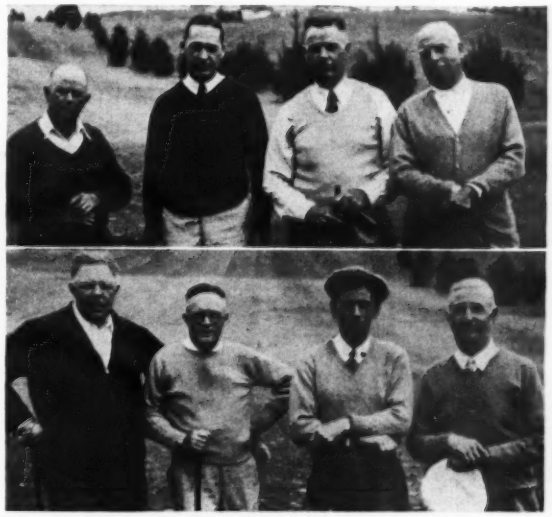
Twenty-one members and guests attended the dinner. The invitation, extended by Edw. Glanz, to hold the October tournament at the Red Run course in Detroit, was accepted, the date to be announced later.



At Michigan Trade Golfers' September Tournament.—Upper row, left to right: C. E. Elliott, Ira R. Kanack, J. E. McFate, J. Gamber, H. J. Eitel, M. B. Allen and William Old. Lower row, left to right: G. F. Godley, C. E. Berry, Wm. Brown, E. Anderson, A. H. Booth, H. O. Nelson, Edw. Glanz, Robt. Milward

San Francisco Trade Group Welcomes New President at Golf Outing

Members of the Plumbing and Heating Club of San Francisco welcomed their new president, W. A. Taylor of Wheeling Steel Corporation, when they gathered at the Millbrae Golf and Country Club for their August tournament. This was the first since their summer recess; also the first since the election of officers, when F. J. Klimm was chosen vice-president, Willard Rainwater, treasurer, and Hal Sales, secretary. Mr. Taylor succeeds F. F. Elliott, who held office as president for the past two years. The golf committee is headed by J. V. Greer, assisted by Thomas B. Mixter and R. J. Fuite.



Upper row, left to right: Wm. Derbyshire, F. F. Elliott, Jack Camp and W. A. Taylor. Lower row: Frank Mosher, F. M. Gabbert, R. P. Olsen and Chris Petersen, at the recent golf tournament of the Plumbing and Heating Club of San Francisco, held at the Millbrae Golf and Country Club.

Jack Camp won handily in Class A with a net 67, while Chris Petersen annexed the honors in Class B. W. Scott called the turn in the blind bogey by shooting—and guessing—80. Additional members and guests who were unable to take part in the tournament, drove down from the city in time for the beefsteak dinner. The scores follow:

	Gross	Net		Gross	Net
Camp	80	67	Clark	93	79
Elliott	81	73	Fuite	92	79
Heleck	82	69	Mixter	81	73
Moser	93	78	Taylor	90	74
Allmon	101	79	Chittenden	114	87

The Wrench Mfrs.' Code Says We Can No Longer Put This Guarantee Label On RIDGID Wrenches

IT'S HEAVY-DUTY
—from hook-jaw to hang-up hole.

We Do Our Part — We Believe In The Code— But the Fact Still is that —

You can't break or distort a RIDGID housing in service

THIS is no news to hundreds of thousands of users of RIDGID Pipe Wrenches. They know what a clever brute this tool is and how unbreakable that housing.

You who haven't tried the RIDGID have an experience coming. If you want a slicker-working tool, if you want to cut your wrench costs—try it.

You won't object at all to the chrome molybdenum nickel steel jaws that grip and let-go instantly and won't slip or lock on a pipe, the full-floating hook-jaw with handy pipe scale on it, the heel-jaw replaceable. Nor the adjusting nut that spins easily in every size, 6" to 60".

Try a RIDGID once. Your jobber has them.

RIDGID
PIPE TOOLS

Greenberg	109	79
Heil	89	72
Petersen	89	71
Woodson	92	75
Derbyshire*	97	97
Haley*	106	106

*Guest.

Walters*	90	90
Harmon	119	84
Nickerson	100	81
Olsen	111	85
Gabbert	93	74
Gibson*	101	101
Judd*	92	92
Scott*	80	80

Eastern Trade Golfers Hold Well-Attended September Tournament

The Eastern Trade Golf Association held its sixth tournament of the season at the Lakeville Golf Club, Great Neck, Long Island, on Tuesday, September 11, with a good attendance.

In the first foursome John C. Kjerner won from J. B. Garfield 5 up and 4 to play; Francis A. Murray won from Lee Klemmer 3 up and 2 to play; John C. Kjerner won from F. A. Murray 1 up 19 holes.

In the second foursome A. P. Keasbey won from Walter Fleisher 3 up and 2 to play; W. C. Mumford won from G. E. Olsen 2 up and 1 to play; A. P. Keasley won from C. E. Mumford 2 up and 1 to play.

William H. Murphy won the president's trophy with scores of 68 and 76. Joseph O'Brien won the guest prize.

The winners of the regular medal play prizes were:

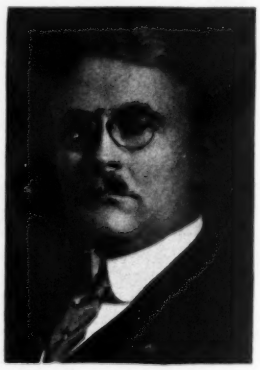
First prize, J. C. McDonald, 94-22-72.
Second prize, Geo. R. Galbraith, 88-14-74.
Third prize, William W. Hubbard, 90-16-74.
Fourth prize, F. A. Fenton, 99-22-77.
Fifth prize, A. T. Miano, 102-24-78.
Sixth prize, D. W. Hughes, 87-8-79.
Seventh prize, F. A. Murray, 90-11-79.
Eighth prize, Robert H. Smith, 95-16-79.
Ninth prize, Leo C. Klemmer, 91-11-80.

	G.	H.	Net
J. C. McDonald	94	22	72
Geo. R. Galbraith	88	14	74
Wm. W. Hubbard	90	16	74
John Kjerner	83	7	76
W. H. Murphy	98	22	76
F. A. Fenton	99	22	77
A. T. Miano	102	24	78
D. W. Hughes	87	8	79
F. A. Murray	90	11	79
A. P. Keasbey	92	13	79
R. Smith	95	16	79
L. Klemmer	91	11	80
H. Bartlett	104	24	80
R. Bontecou	91	10	81
Geo. E. Olsen	99	18	81
D. M. McKay	90	7	83
C. Mumford	103	20	83
Ernest G. Williams	105	21	84
I. S. Forde	116	32	84

	G.	H.	Net
G. F. Sheehan	121	37	84
R. M. Hall	118	34	84
J. B. Garfield	91	6	85
R. H. Putnam	95	10	85
Geo. Scott	101	16	85
Geo. Allen	105	20	85
Tom Powers	102	16	86
Walter Fleisher	103	15	88
W. G. White	105	17	88
D. H. Roney	110	22	88
R. Myer	96	7	89
B. K. Strader	115	24	91
Walter Heibel	131	40	91
Ed. Bauman	113	21	92
C. S. Wood	116	23	93
A. Hinrichsen	112	16	96
E. Ruppert	120	24	96
T. H. Kellogg	111	12	99
J. Everetts, Jr.	135	35	100

John W. Gannon Dies in His 73rd Year

John W. Gannon, manufacturers' representative in New York City, died at his home in Newark, N. J., on Sunday morning, September 9, in his 73rd year. Mr. Gannon came, about twenty-five years ago, to New York from Chicago, where he had for several years been connected with the L. Wolff Mfg. Co. His first affiliation in New York City was with the Central Foundry Co. This connection lasted four years, at the end of which he opened offices as manufacturers' representative at 30 Church Street, New York City. Mr. Gannon's wife died August 9 this year. His son, Wallace A. Gannon of Caldwell, N. J., survives him.

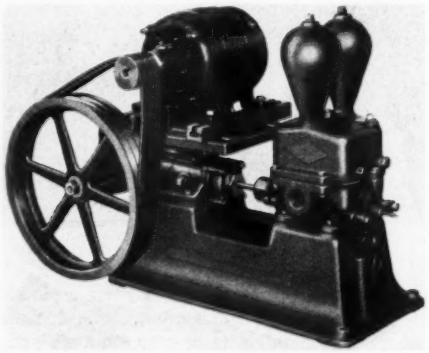


John W. Gannon

NEW STORE·SHOP and JOB ITEMS

An Improved Water Supply Pump

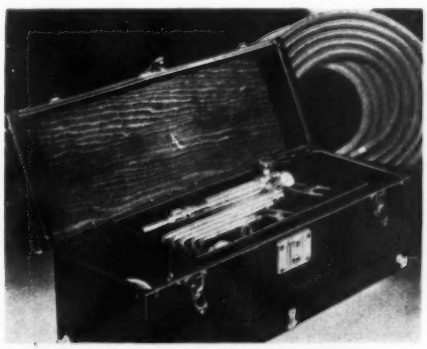
This pumping equipment has been announced as ideally adapted to the task of providing water supply for creameries, cheese factories, sprinkling systems, institutions, industrial plants, etc., where water stands within suction distance and where the discharge pressure required does not exceed 100 lb. per sq. in. It is listed as an improvement over an older pump model and is one of a line of water supply pumps. This pump is available in two sizes, one has a capacity of 11 gal. per minute and the other has a capacity of 18 gal. per minute. The crank shaft, which is drop-forged and the crank end of the connecting rod, which is an aluminum alloy, both operate on what are described as oversized ball bearings. The unit is described as a gear-less double-acting piston pump and is made by A. Y. McDonald Mfg. Co., of Dubuque, Iowa.



Water Heater and Incinerator

A hot water supply heater for the average home especially built so that it also serves as an incinerator for the household garbage has just recently been placed on the market. The unit shown in the accompanying illustration consists of a solid fuel heater with a basket shaped iron receptacle for garbage placed above the fire box. Hot gases and radiant heat from the fire in the heater come in close contact with the garbage so as to completely consume it without any trace of odor. The special construction of the garbage compartment is made to remove all danger of the fire being smothered or killed by the refuse. A special flat top on the unit makes possible various special uses of the equipment such as heating water for laundry or similar purposes. A fire brick combustion ring is provided in the heater to prevent the chilling of the fire and to make it possible to burn coal economically when the fire is checked. The shaking grates are designed for small size fuels. Water sections come in two heights for operating water capacities. One size is for use with a tank capacity of from 40 to 60 gal. and the other with a tank capacity of from 70 to 90 gal. The unit has a guaranteed working pressure of 125 lb. while plant tests are

run with hydrostatic pressure of 315 lb. American Radiator and Standard Sanitary Corp., located at 40 W. 40th St., New York City, is the manufacturer.



Oxyacetylene Outfit for Threadless Fittings

The outfit shown in the accompanying illustration has been placed on the market just recently to meet the need of steamfitters and plumbers for equipment which can be used in the

It's a KOVEN Product

Built as a tank should be built

In the long run the plumber is held responsible for the work he installs on the job, therefore the plumber should pick the type of merchandise that is the best.

In a Koven tank he knows that he is getting it built as it should be built—best material procurable, expert workmanship, and the backing of the Koven reputation.

A few of the Koven Products:

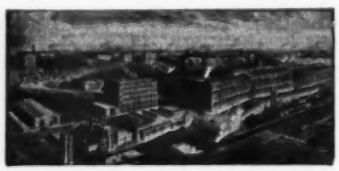
RANGE BOILERS Galvanized or Copper
SCULLERY SINKS
BARBER BOILERS
KOVEN-PARACOIL TANKS

NRA WE DO OUR PART

STORAGE TANKS Steel or Copper
FUEL OIL TANKS
EXPANSION TANKS
SEPTIC TANKS

Insist on the best by asking for Koven products from your jobber.

Send for New Plumbers' Hand Book

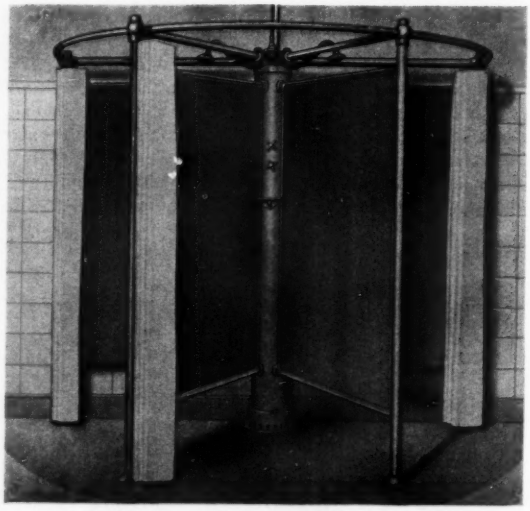


L.O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

installation of threadless bronze fittings which are fitted with brazing alloy rings. Specifically, the equipment is for use in connection with the bronze fittings made by Walworth Company. With this outfit hooked up to the gas cylinders, it is only necessary to slip the bronze pipe into the fitting until it butts up against the shoulder and then to apply the heat from the torch to the pipe and fitting until a white ring of alloy appears around the pipe. This same outfit for making threadless joints is designed to be entirely suitable for pipe welding, Air Reduction Sales Company, of 60 East 42nd St., New York City, is the maker.

Group Shower Stall

Here is a unit which has been placed on the market just recently to fill the need for semi-circular wall type group showers. It is made to accommodate three users at one

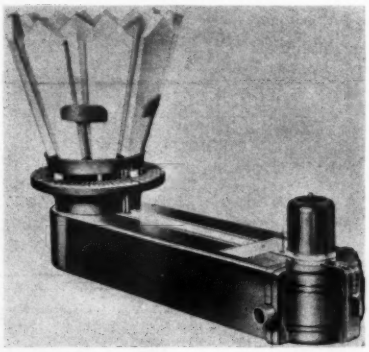


time and is described as requiring only three plumbing connections; two supplies and one drain. It is designed to be easily and quickly installed in new or old buildings. A mixing chamber is included which the manufacturer says practically eliminates scalding hazard. The equipment is made to permit the water to be tempered to any desired degree at any pressure. It is constructed of seamless steel tubing and sheet partitions, which are finished in baked enamel. It is equipped with white duck curtains and may be had with supply connections from above or below. Bradley Washfountain Co., 2203 Michigan Street, Milwaukee, Wisc., is the manufacturer.

An Improved Gas Conversion Burner

Here is equipment which just recently has been placed on market for converting boiler equipment into gas heating equipment for homes. It is described as being an improvement on an older piece of equipment. Attractiveness and simplicity are the outstanding features listed for this item. In simplifying the control mechanism, it has been possible to make the assembly compact and at the same time eliminate the piping used in previous models of this burner. Another feature of this burner is the electric ignition which has been included for lighting the pilot. A single valve at the front

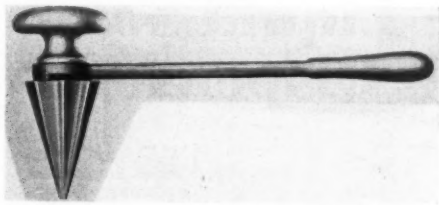
end of the unit gives control of the gas supply. By turning the valve from "off" to "on" the gas supply to the pilot is open. A short forward thrust on the valve handle while in the "on" position opens the gas supply to a small lighter which is ignited by a coil simultaneously heated by electricity. The lighter, in turn, ignites the pilot. Releasing the



handle of the valve extinguishes the lighter and cuts off the electric current. As a safety precaution, a small two-way toggle switch cuts out the lighter circuit when the electrically controlled main gas valve is in operation and vice-versa. Another feature which has been built into this burner is for the purpose of reducing the noise accompanying both the ignition and extinguishing of the burners. The burner heads have been re-designed to bring this about. The control mechanism is concealed both for the purpose of improving the appearance of the unit and to protect the control parts from dirt and dust. Furthermore, the enclosed control tends to eliminate the disturbing of the adjustments either through carelessness or tampering. Surface Combustion Corporation, of Toledo, Ohio, is the manufacturer.

A Swivel Pipe Reamer

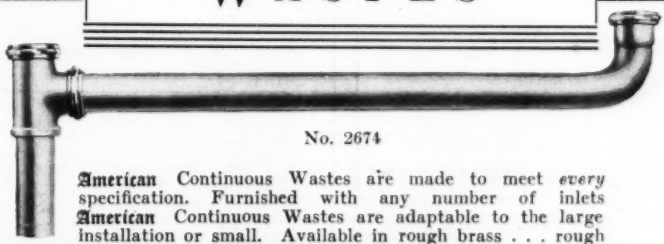
This tool reams pipe in sizes ranging from ⅛-in. to 2-in. The handle and knob are made to be unbreakable. The reamer head is of alloy steel and is heat-treated. The idea is that it can be re-sharpened over and over again. When it is finally worn out, the reamer can be replaced. The Borden Company, located at Warren, Ohio, is the manufacturer.



An Improved Steam Generator

Here is a unit for providing a small source of steam for process uses up to 300 lb. per sq. in. pressure. It is an electric unit and just recently has been placed on the market

American
CONTINUOUS
WASTES



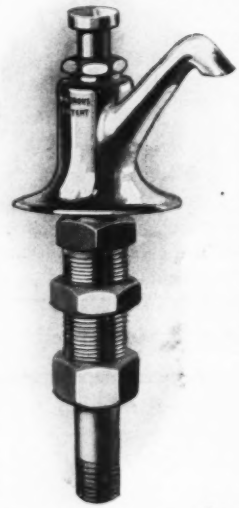
No. 2674

American Continuous Wastes are made to meet *every* specification. Furnished with any number of inlets American Continuous Wastes are adaptable to the large installation or small. Available in rough brass . . . rough nickel plated, polished brass . . . nickel plated . . . chromium plated. Inlets furnished either 1½" or 1¼". Centers, 14" to 52", gauges 20 and 17. Nuts and tees are of cast brass, other parts are of seamless tubes. May be furnished with center outlet if necessary. True American quality throughout. Order from your jobber.

American SANITARY MANUFACTURING COMPANY, ABINGDON, ILLINOIS

☆ American ☆
THE QUALITY LINE

Why the
World's Fair
Buildings
were equipped with
Watrous
Liquid Soap
Dispensers



THE hard 5-months' service exacted from the plumbing fixtures at the Chicago Century of Progress has been estimated as equivalent to a 5-years' test under ordinary conditions. Watrous liquid soap fixtures and flush valves have met this test for two severe seasons in the washrooms of all the official buildings.

The type chosen appears at the left. The installation was directed by James B. Clow & Sons, jobbers, and the J. W. Holt Plumbing Co., contractors.

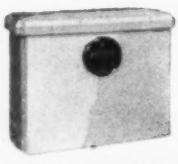
Horizontal type valve threaded for ⅜" pipe.

Latest push-in type with wall bracket.

Concealed type, with push-button cap.

Invertible type for refilling. Plunger at foot.

Wall type with metal container.

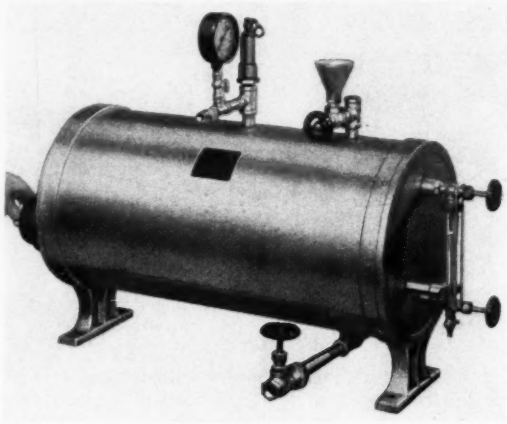


Soap tank, vitreous china, with capacity gauge.

Write for catalog 433, giving full details of the entire line of Watrous plumbing fixtures.

IMPERIAL BRASS MFG. CO.
1231 West Harrison St., CHICAGO

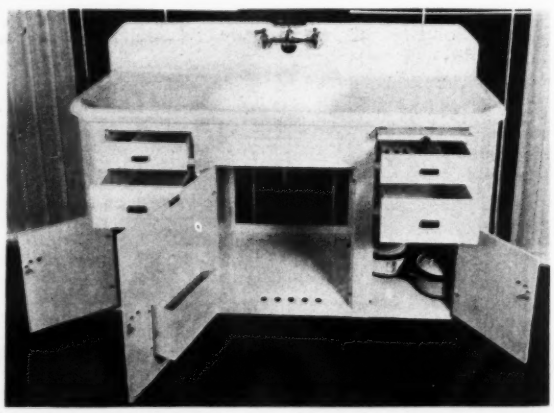
with various improvements over an earlier model. It is available in capacities ranging from 2 to 18 Kilowatts which have equivalent ratings of from 6 lb. to 54 lb. of steam by weight generated per hour. Also, it is available for 0 to 100, 0 to 200 and 0 to 300 lb. per sq. in. gauge steam pressures. Among other uses, this unit has a seasonal application in



that its use can enable many plants to shut down their main heating boilers for the summer. The electric steam generator then produces just those small amounts of process steam needed for one or two kettles, presses, etc. or for live steam. Commonwealth Electric and Manufacturing Co., 83-105 Boston St., Boston, Mass., is the manufacturer.

Sink and Cabinet Combination

To provide useful working and convenient storage space is the purpose for which the sink and cabinet combination shown in the accompanying illustration has been designed. This equipment is available in various lengths, having a

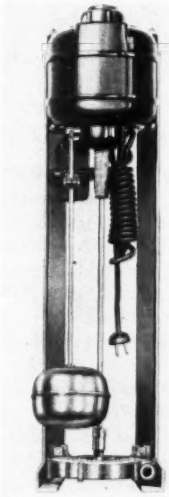


right, left and double drain-board combination. The sink is made in one piece and the bowl is formed integrally from steel. The finish is white porcelain enamel which is designed to be acid-resisting. The cabinet is finished in white acid

resisting baked enamel. It provides shelf space in addition to drawers for cutlery, utensils, linen, etc. The black enameled base is made to allow ample toe room for the user with the idea of eliminating fatigue caused by bending forward in front of the sink. The doors are provided with slam-proof bumpers. The fittings include a faucet made of polished chromium plated brass with a mixing swing spout and a removable soap dish. Also a 2-in. or 4-in. crumb catching strainer with a removable cup is provided. The 4-in. strainer also can be used as a valve so as to permit the washing of dishes in the sink. The base is made so that it can be sealed to the floor for the purpose of preventing dust and dirt from accumulating under it. The Youngstown Pressed Steel Company, of Warren, Ohio, is the manufacturer.

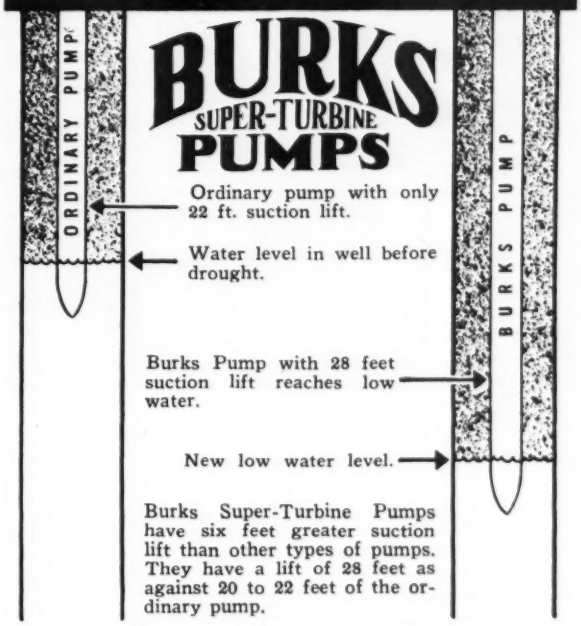
An Electric Cellar Pump

Here is a pump which is designed to fill the requirements of the home where severe water seepage conditions are encountered. The equipment is available both for portable and permanent use. The portable or non-automatic pump is arranged so that it can be connected in about 5 minutes time. Where a small pump and permanent piping can be made, the automatic pump is used. The portable pump installations can be changed over to permanent automatic installations. The inlet is screened against heavy materials and the discharge is designed for a ¾-in. hose. The capacity is rated for a free discharge of 1,500 gal. per hr. It has a base 7 in. by 7 in. in size. The height of the unit is 27 in. and the weight is 36 lb. The motor is of the single phase type, ¼ h.p. 110 volt A. C. and is fitted with 10 ft. of flexible cord having a plug connection. This permits the motor to be operated from a light socket. The automatic feature consists of a ball float operating double pole snap switch. With this feature, the pump starts and stops automatically by the rise and fall of water for which it is adjusted. This equipment is manufactured by Arch T. Flower, 613 Greenwood Ave., Jenkintown, Pa., and sold by The H. Weissinger Co., 1805 Spring Garden St., Philadelphia, Pa.



ADD 6 FEET TO SUCTION LIFT

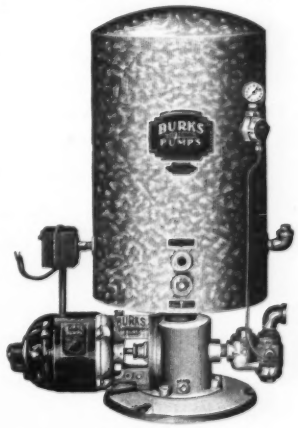
BURKS SUPER-TURBINE PUMPS


ORDINARY PUMP
BURKS PUMP
Ordinary pump with only 22 ft. suction lift.
Water level in well before drought.
Burks Pump with 28 feet suction lift reaches low water.
New low water level.

Burks Super-Turbine Pumps have six feet greater suction lift than other types of pumps. They have a lift of 28 feet as against 20 to 22 feet of the ordinary pump.

Relieve the Dry Weather Emergency

Over vast areas this summer and perhaps in your own locality—the water level of wells has sunk lower than ever before. BURKS pumps reach that lower level where other pumps are useless. Good business in reinstallations awaits you if you have BURKS, the pump of only one moving part; self-priming, starts from scratch, never out-performed yet.



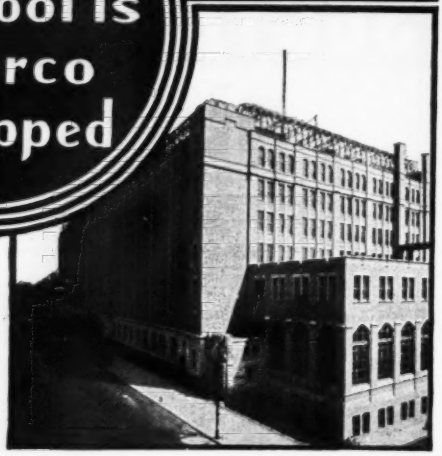
Greater profit plus Competitive Distinction

BURKS franchise offers profit margin 50% higher than most others. And in addition, a pump that definitely outclasses other pumps, fits in anywhere and delivers year by year satisfaction without repair costs. Don't be content with penny profits when you can just as well make the dollars with BURKS. Write today for new catalog No. 34 now ready.

The BURKS Franchise Cannot Be Equalled in Liberal Discounts, Quality Products, Sales Advantages, Profit Opportunity

DECATUR PUMP COMPANY DECATUR, ILLINOIS

The Country's Largest Technical School is Sarco Equipped



This new Brooklyn, N. Y., Technical High School is the largest of its kind in the country. It has a capacity for 5,500 students and cost $5,500,000.

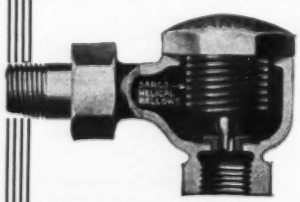
SARCO HEATING SYSTEMS — BUILT TO A QUALITY STANDARD

There are more than 1,000 Sarco Radiator Traps and Inlet Valves and 225 Sarco FT Float and Thermostatic Traps in this building.

It is a convincing tribute to the satisfactory performance and long life of Sarco Traps to be selected for this monumental structure after the city of New York has tried and tested the Sarco for years in a large percentage of its schools.

Sarco are quality traps through and through. The body is non-corrosive cast bronze. Bellows is seamless phosphor bronze tubing helically corrugated. Valve heads are self-aligning. Traps are noiseless and economical in operation.

Please write for our catalog M-45.



SARCO CO., Inc.
183 Madison Avenue
New York, N. Y.

Branches in Principal Cities
Sarco Canada Limited,
Federal Bldg.
Toronto, Ont., Canada

SARCO RADIATOR TRAPS

A. B. Wilder Made General Manager of Parkinson Heater Corporation

Allen B. Wilder

Allen B. Wilder, the head of the Parkinson Heating Appliances, Incorporated, New York City, has just arrived in Chicago to take over the general managership of the Parkinson Heater Corporation of Chicago. Mr. Wilder graduated from the University of Missouri as a mechanical engineer in 1912. For several years he was connected with the Sherman Corporation doing industrial engineering work. Mr. Parkinson sent him to New York three years ago to introduce tankless submerged heaters to eastern property owners.

The Parkinson Heater Corporation, with many installations in the middle west, did not extend to the eastern seaboard until it sent Mr. Wilder to New York. He returns to the Corporation as its general manager, leaving active sales and service organizations in all of the principal cities in the east.

The recent death of the president and general manager of the Parkinson Heater Corporation and the expansion of its activities has forced the recall of Mr. Wilder to take complete charge of its operation.

Southwestern Trade Golfers Hold Pleasant August Tournament

The Southwestern Trade Golf Association held its regular monthly tournament at the Old Mission Golf Club, near Kansas City, Mo., on Thursday, August 30, and it proved a pleasant success.

The prizewinners of the day and their scores were as follows:

Class A. Carl Smith, 79-6-73; H. H. Wright, 86-13-73; F. O. Piepenbring, 91-14-77.

Class B. Daniel Foley, 85-15-70; Ed. Harbordt, 95-18-77; E. R. Hendricks, 96-18-78.

Birdies: Carl Smith, 2; F. A. Scoles, 1; H. H. Wright, 1; Daniel Foley, 1; Ed. Harbordt, 1; F. O. Piepenbring, 1.

Low Putts, Carl Smith.

Blind Bogie, Walter Wiedeman, 83.

Death of Joseph B. Smith

Joseph Betts Smith, plant engineer for the Malleable Iron Fittings Company of Branford, Conn., since 1908, died recently at his home in that city, after several weeks' illness. Mr. Smith was born September 4, 1868, at New Haven, Conn., was educated at Hillhouse high school, New Haven, and at Sheffield Scientific School, Yale University.

Geo. T. Ogden Dies in His 44th Year

George Thomas Ogden, sales engineer for the C. E. Squires Company of Cleveland, Ohio, died recently at his home in that city in his 44th year.

Eric C. Nelson Called by Death

Eric C. Nelson, secretary and sales manager of the Wigman Co. of Sioux City, Iowa, died at his home in that city on Wednesday evening, August 29th, in his 43rd year. Mr. Nelson was a director of the Sioux City Construction League.

THE TRADE

News of what plumbing and heating contractors are doing the country over

Cut in Fixture Prices Will Aid Modernization Sales

By JOHN J. CALNAN
President N. A. M. P.

Wishing to extend the fullest possible cooperation to President Roosevelt in his efforts to get a large volume of work in the construction industries under way, the leading manufacturers of plumbing fixtures have announced a drastic reduction in prices.

The new schedule of prices should be of great assistance to plumbing contractors in their efforts to get the benefits of the nation-wide campaign for modernization now going on under the direction of the Federal Housing Administration.

The new prices, some of which are 20 per cent lower than previous quotations, should be effective in establishing the plumbing contractor more firmly than ever in the mind of the public as the logical source of plumbing materials.

With the government providing for our industries the most extensive publicity campaign for modernizing that this nation has ever seen, with the manufacturers providing low prices, and with funds available to the home-owner at the lowest rates ever quoted for camparable loans, there is every reason for the plumbing contractor immediately to begin an active participation in the modernization sales campaign.

I urge all contractors to contact the prospects for plumbing and heating equipment in their own localities.

The nature of the new price schedule is such that early conferences between contractors and their sources of supply are advisable. In fact, I would urge the immediate organization of conference committees by all local associations which do not, as yet, possess this efficient machinery for the adjustment of questions arising between contractors, wholesalers, manufacturers, and journeymen.

Indeed, if the plumbing industry is to get the maximum benefit from the sales opportunities offered to it by the Federal Housing Administration, the closest cooperation between contractors, wholesalers, manufacturers, and journeymen is necessary.

Enccuraging reports have reached me regarding the amount of work that members of the National Association of Master Plumbers are obtaining as a result of the public interest in modernizing aroused by the activities of the Federal Housing Administration.

About 35 per cent of the money loaned for modernizing projects in one middle western city is going for plumbing or heating repairs and extensions.

One of our large manufacturers has reported that the advertising he is now doing is from eight to ten times more productive of inquiries than any advertising that has been done in recent years.

I urge all members of the National Association of Master Plumbers to fully cooperate with the regional directors of the Federal Housing Administration.

Let me say at once that this work is not yet fully under way. When it is, the nation will be subjected to the most intensive effort to create modernizing work that we have ever experienced.

It is very important that all members of the National Association of Master Plumbers understand the objects of the Federal Housing Administration.

The Federal Housing Administration will make good on any losses on loans to the extent of 20 per cent of the total loaned by any institution.

Inasmuch as the FHA has to make good on losses, they have a direct interest in having the borrower thoroughly satisfied with his modernizing work. This means good workmanship. It is for this reason that the FHA in its publicity and advertising is recommending to the home-owner the use of quality materials and the employment of reputable and reliable contractors.

To get the story of modernizing loans over to the public, to the contractor, to the banker, and to civic clubs, the Federal Housing Administration has had four sound films made for each of these groups.

My chief object in writing this article for the members of the National Association of Master Plumbers is to urge officers of local associations to borrow the film made especially for contractors and show this at the next meeting of the association. Call, wire, or write to the director of the Federal Housing Administration in your state and obtain the use of the film at your earliest opportunity.

I would further suggest, in my opinion, that it would be advisable to show these films at joint meetings of the contractors, wholesalers, and representatives of manufacturers in the various localities. Arrangements for showing of these pictures at joint meetings can easily be made through conference committees.

Greater New York Master Plumbers Study NRA Code at September Meeting

The Greater New York Master Plumbers Association held its regular annual meeting in the rooms of the Brooklyn Branch of the Association, 8 Nevins Street, Brooklyn.

President Matthew J. Kennedy presided at the meeting which was attended by good-sized delegations from all the branches.

Jacob Stockinger, Jr., chairman of the Code Compliance Committee, went into detail about plans for the enforcement of the NRA code, explaing the complete set-up for collection of fees, handling of complaints, depositing of bids, etc.

The meeting was thrown open for general discussion of the subject, and Mr. Stockinger and his committeemen answered all the many questions which were propounded.

The report of the various committees were presented and routine business transacted.

The election of officers resulted in the re-election of the entire staff of officials with the addition of S. G. Arnone, who was elected secretary to fill the vacancy caused by the

Upper row, left to right: Jere Sheehan, St. Louis, past president, N. A. M. P.; Daniel O'Connor, Peoria, Ill.; John J. Calnan, Chicago, president, N. A. M. P.; J. S. Levene, Kansas City, vice president of Missouri Association; C. L. Kennedy, St. Joseph; William Ball, Kansas City, Mo., and Arthur Maier, St. Louis. Lower row, left to right: Herman Flesser, Jefferson City, Mo.; H. Bartosch, treasurer of St. Louis Association; H. Braun, St. Louis; R. C. Hunt, president of St. Louis Association; W. V. Mallen and W. R. Dunlap, both of Kansas City, and John H. Weiler, St. Louis, chairman of entertainment committee.—From photographs taken at the recent convention of the Missouri Master Plumbers' Association

death of John J. Dixon, who had served in this capacity for many years.

The officers are: President, M. J. Kennedy, Brooklyn; first vice-president, Fergus F. McLaughlin, Manhattan; second vice-president, J. A. Burns, Richmond; secretary, S. G. Arnone, Bronx; treasurer, John F. Rogers, Queens; sergeant-at-arms, B. Reich, Brooklyn; trustees: Louis Frisse, Brooklyn; Harry Sugarman, Bronx, and J. D. Cooley, Manhattan.

In closing the meeting President Kennedy referred to the recent death of Secretary John J. Dixon and the valuable services he rendered the Association, and all the members rose and stood in silence one minute in honor of his memory.

Directors of New Jersey State Association Consider Code Problems

The board of directors of the New Jersey State Association held its regular meeting in Orange, N. J., on September 17, with President Edmund P. Ingram in the chair and the other officers in attendance as follows: First Vice President George McVoy, Second Vice President Ed. J. Geyer, Third Vice President Halsey B. Armstrong, Fourth Vice President George Brenner, Secretary Anthony Marzullo, Treasurer George H. Werner and Trustees Irving Chew and Fred Baker.

Delegations of members were also present from Newark, Montclair, Atlantic City, Vineland, Burlington County, Long Branch, North Hudson, Trenton, Englewood and Paterson.

Al Ruehl, chairman of the Collective Bargaining Agreement Committee, presented his final report. By vote this report was turned back to the executive committee for final action.

There was some warm discussion on some of the sections, but when it was finally turned over, only two sections remained open for further action: One relating to whether time and a half or double time should be paid for overtime, and the other in the matter of "alterations" on a job. The word "alterations" caused considerable discussion as there were many varied opinions as to what it would cover. The instructions to the executive committee were that it should not use the word.

Neil J. Convery, state architect advisor of the Home Owners Loan Corp., gave an interesting talk on the H. O. L. C. and also on the National Housing Act and answered many questions that were troubling the members.

President Ingram gave an outline of the set-up for the Code Compliance Commission of the State and issued instructions to the members of the committee as to how to handle collection, complaints and depositing of bids.

A committee composed of the four state vice presidents was appointed to investigate the advisability of forming a merchandising unit of the members of the State Association. The idea of this is to bring home to members their importance as buyers and sellers of plumbing and heating products.

Executive Director Barrett Explains Code to Ohio Contractors

Robert J. Barrett, executive director of the Divisional Code Authority for the Plumbing Contracting Division, Washington, D. C., was the main speaker at a meeting of the Plumbing Contractors' Association of Cleveland, Ohio, held in the Builders' Exchange Building in that city on Friday evening, September 14. The meeting was attended by about 300 persons, and Mr. Barrett held the close attention of the audience while he explained the Code and the penalties which will be imposed for non-conformance with it.

"The NRA Plumbing Code is now law and will be enforced on members and non-members alike. All persons engaged in the plumbing business are obliged to respect it," said Mr. Barrett. He spoke an hour and a half and answered questions from the audience.

Among other speakers who addressed the meeting were Howard C. Baker of Toledo, president of the Ohio Master Plumbers' Association, and Walter E. Eynon of Canton, chairman of the State Code Compliance Committee.

Delegations from Elyria, Lorain, Sandusky and other nearby cities were in attendance.

Mr. Barrett delivered another address before an audience of five hundred master plumbers in the Union Gas & Electric Auditorium in Cincinnati, Ohio, on Thursday, September 13.

In his address Mr. Barrett emphasized the point that all master plumbers in the United States are under the ruling of the Plumbing Code whether or not they have signed a compliance blank. He also mentioned that all master plumbers in Ohio Northern Zone will be guilty of evading the Code, if they do not pay journeymen a minimum wage of

$1.20 per hour, and if they have allowed them to work more than 40 hours per week without equalizing to 160 hours in any four consecutive weeks.

Mr. Barrett was given a rising vote of thanks for his address and for his code work.

Edward Frank, chairman of arrangements for this meeting, introduced Bernard A. Walterman, president of the Cincinnati Master Plumbers' Association, who welcomed the large assembly to Cincinnati.

Edward B. Kleine, a member of the Board of the Divisional Code Authority, lauded Mr. Barrett for his work in obtaining a code for the plumbers.

Howard C. Baker, president of the Ohio State Association of Master Plumbers, made a plea for larger and better membership in the association.

Past National President Jere Sheehan said he was thankful for the privilege of being present and hearing Mr. Barrett's instructive address, because he would now be able to enlighten his brother members in St. Louis.

State Code Committee Divides Philadelphia Into Three Zones

Robert H. Pflug-Felder of the Pennsylvania State Code Compliance Committee announces that Philadelphia has been divided into three zones according to area and population with a compliance board in each zone. The following have been nominated to the board subject to the approval from the Divisional Code Authority in Washington, D. C.:

Zone 1. Harry L. Stilwell, Jr. (M.), Wm. H. Frey (M.), J. J. Jarvis (N. M.).

Zone 2. Howard Smith (M.), Nicholas Connolly (M.), John J. Love (N. M.).

Zone 3. Walter Riad (M.), Geo. Boon (M.), I. Raphael (N. M.).

San Francisco Masters Hear Talk on NHA

As part of their comprehensive program of explaining the workings of the National Housing Act and how to go after business under this provision, members of the San Francisco M. P. A. were privileged to hear a talk by Elmer K. Ross, assistant sales manager of Crane Co., at Plumbers Hall, on Friday evening, September 7. Mr. Ross explained his company's plan of home modernizing under the provisions of the new act, with particular reference to the financing procedure. He made it clear that his purpose was not so much to promote the interests of any one manufacturer as to urge the necessity of persuading the prospect to spend his dollar in the plumbing and heating field. Mr. Ross' talk was followed by an open forum, after which refreshments were served.

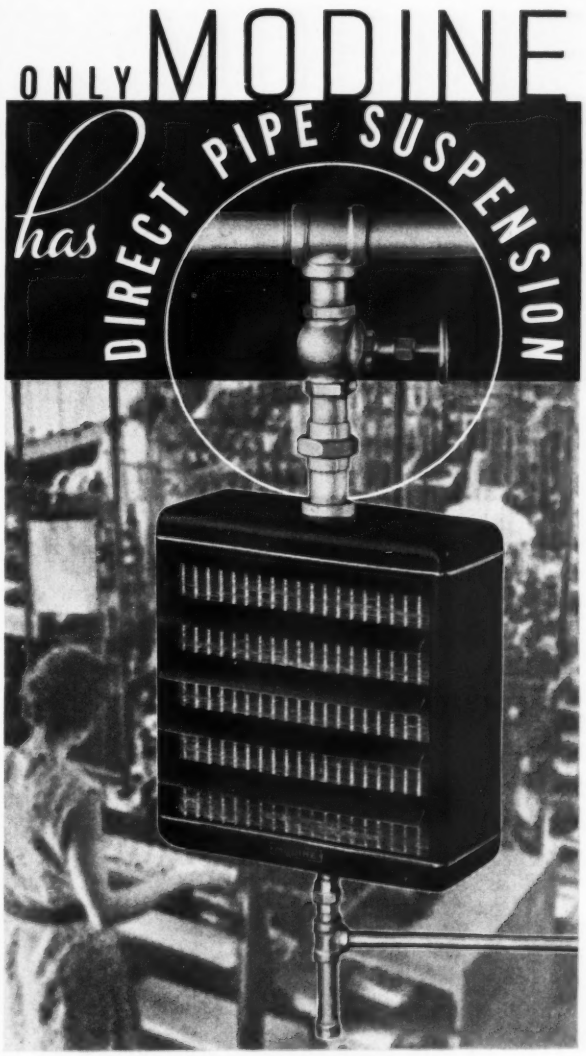
President Jack Camp presided and introduced the speaker.

Birmingham Plumbers Elect Officers

The Master Plumbers' Association of Birmingham, Ala., held its annual meeting recently with the following result: Charles A. Mandy of the Mandy Plumbing Co. was re-elected president, John Tully was re-elected vice-president and J. H. Hamill was elected treasurer. Carson Inscho was named secretary to succeed W. A. Finley, who has been made chairman of the district compliance board.

Trenton Sees Copper Demonstration

The Master Plumbers' Association of Trenton, N. J., had an exceptionally good attendance at its regular meeting September 17, the main feature of which was a demonstration of copper tubing plumbing, given by representatives of the Chase Brass & Copper Company, Inc., of Waterbury, Conn. A. A. Kafer, Jr., of Bordentown, N. J., was admitted to membership.



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Erie, Pa., U. S. A.

Top row, left to right: E. G. Fisher, Kansas City, Mo.; E. J. Blake, secretary of the St. Louis Master Plumbers' Association; C. F. Heer, Kansas City, Mo., and Fred J. Praechter, St. Louis, past president of Missouri Association. Lower row, left to right: William Brookman, secretary of Illinois Master Plumbers' Association; Fred Hamm, Joplin, Mo., state director; Philip Krusz, St. Louis, and J. J. McCue, St. Louis. —From photographs taken at the recent convention of Missouri Master Plumbers' Association

Orange Master Plumbers' Association Picnics at Cliffwood Beach

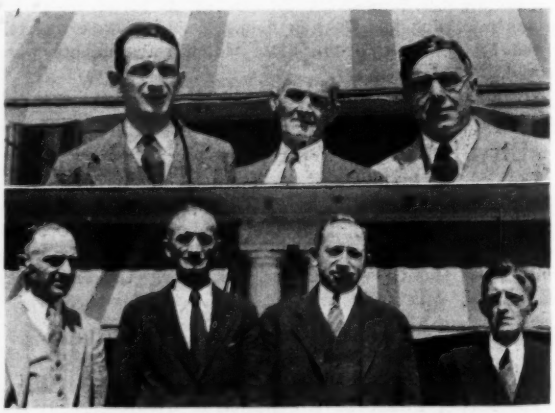
The Master Plumbers Association of Orange, N. J., with members in Orange, East Orange, West Orange and Maplewood, held its annual outing at Cliffwood Beach, N. J., on Thursday, August 30.

Miniature golf—yes, it is still in existence in some places —and horseshoe pitching were the main diversions of the day. Some fun and several prizes were also obtained from a miniature dog race-track through the courtesy of W. B. Egbert & Co., Inc., of Newark, N. J.

The officers of the association, who were also present, are: President A. G. Trapper, Vice President Raymond Bocca, and Secretary Willard Durr.

Members of Salt Lake Plumbing Industry Enjoy Annual Outing

Baseball, horseshoe pitching, races, swimming, dancing and food were enjoyed by the Utah master plumbers, wholesalers, journeymen and their guests, at the outing of the



At the Oranges' Outing.—Top row, left to right: Secretary Willard Durr, President A. G. Trapper, and Vice President Raymond Bocca, officers of the M. P. A. of the Oranges and Maplewood, N. J. Bottom row, left to right: Fred Hoffman, Orange; Herbert Palmatier, E. Orange; Leslie H. Williams, E. Orange, and Alfred T. Brady of Orange, N. J.

At Bronx Master Plumbers' annual outing, held at the Colonial Inn, City Island, N. Y., August 29

plumbing industry at Lagoon, on August 18. One-hundred-twenty-five persons enjoyed the outing.

At the commencement of the program, A. H. Higham and Ralph Aldous chose teams for indoor baseball with the former's proving the winning combination.

A. H. Higham, Ralph Aldous and George Parfitt composed the general committee in charge of the outing, with the following sub-committees: Henry Chapman and John W. Dudley, horseshoes; Marshall G. Ericson and S. A. Erskine, races; Charles J. Dietz and Jack Burns, swimming.

Florida President and Vice President Visit Many Associations

D. A. Mayfield of Jacksonville, Fla., president of the Florida State Master Plumbers' Association, and Foster R. Fanning of Winter Park, vice president of the same association, visited the local associations in St. Petersburg, Clearwater, Tampa, Lakeland, Winter Park and Orlando on Wednesday and Thursday, September 19 and 20.

Mrs. D. A. Mayfield and Mrs. Foster R. Fanning accompanied their husbands and met the members of the Women's Aubiliaries in the cities visited. In Tampa, Mrs. W. E. McAndrew gave a party in honor of the visiting ladies.

Bronx Master Plumbers Hold Successful Outing

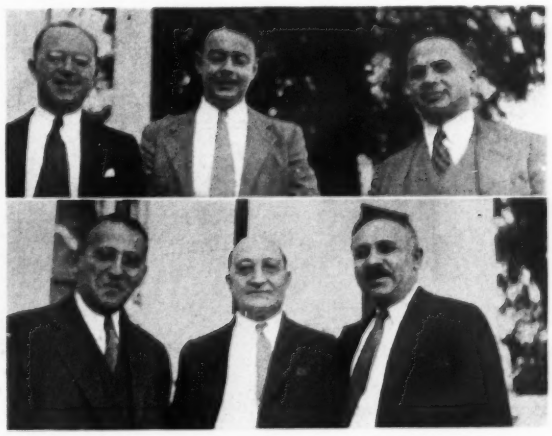
The Bronx Branch of the Greater New York Associatiou of Master Plumbers held its annual outing at Colonial Inn, City Island, N. Y., on Wednesday, August 29, with a good attendance not only of master plumbers but also of representatives of manufacturers and wholesalers.

The big feature of the day was the baseball game, in which the master plumbers defeated the wholesalers with a score of 16 to 14. The batteries for the game were: Master Plumbers, Arnone and Robilliard; and Wholesalers, Snyder and Bayer. The umpire was Phil Farbman, recording secretary of the Bronx Association.

Alfred Beyrodt, treasurer of the Bronx Association, was general chairman of the outing committee, and S. G. Arnone, president of the Bronx Association, was secretary and treasurer of this committee. These two officers and the members of the committee handled the affair in a most excellent manner so that everyone had a good time.

Among the visitors were Nicholas P. Donohoe, secretary of the New York State Association of Master Plumbers, Jacob Stockinger, Jr., president of Queens Association, and John F. Rogers, treasurer of the Greater New York Association and treasurer and financial secretary of Queens Borough Association.

At the Bronx M. P. Outing.—Top, left to right: John F. Rogers, Flushing, treasurer, Greater New York Association, and secretary-treasurer of Queens Association; Nicholas P. Donohoe, Richmond Hill, secretary of New York State Association, and Jacob Stockinger, Jr., president of the Queens Association. Bottom, left to right: S. G. Arnone, president; Walter J. Baker, executive secretary, and Alfred Beyrodt, treasurer, all of the Bronx Association



At the Bronx M. P. Outing.—Top, left to right: Gus Becher, manufacturers' agent; Joseph Kalisch of Sam. S. Glauber, Inc., and Robert Smolka, secretary of Sam. S. Glauber, Inc. Bottom, from left to right: Harry Ruider, H. Ruider Plumbing Supply Co.; I. Spiro, Spiro & Klausner, Inc., and John Richman of Industrial Plumbing Supply Co.

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Jersey City Master Plumbers Hold Dinner and Card Party

The Master Plumbers' Association of Jersey City, N. J., held a dinner and card party at Plaza Tea Garden in that city on Wednesday, September 12. This affair this year took the place of the usual annual outing, and with about 300 persons in attendance it proved such a glorious success that the association will probably arrange to have more of the same kind of powwows during the coming winter.

After enjoying an excellent repast, the party spent the evening playing cards, a novel prize being awarded to the high scorer at each table.

Many other fine prizes were also awarded, the winners of the more important of these being: Mrs. F. Frandson, Mrs. M. Crosby, Mrs. Wm. Kern, Jas. T. Brennan, Robert Anderson, Jr., James J. Conlin, Frank Smith, Jacob Rausch, Jr., and Louis Komoski.

Among those in attendance were: Past State President John J. Corcoran, State President Edmund P. Ingram, State Association Secretary Anthony Marzullo, and Field Man L. Wake.

Among leading members of the Women's Auxiliary in attendance were: Mrs. Charles Zimmerman, national director and past state president; Mrs. Wm. T. J. Orriss and Mrs. Henry Bunker, past state presidents; Mrs. John J. Corcoran, past state president and chairman of the Sanitary Committee of the Women's Auxiliary to the National Association of Master Plumbers; Mrs. L. Komoski, state vice president, and Mrs. Clyde Cole, sergeant-at-arms in the state association.

Among the local officers in the Women's Auxiliary in attendance were: President Mrs. Robert Gilliyan, Vice President Mrs. John T. Edge, Secretary Mrs. Robert MacDonald and Treasurer Mrs. James Conlin.

The officers of the Jersey City Master Plumbers' Association present were: President Jas. J. Conlin, Vice President Robert MacDonald, Secretary Jas. T. Brennan and Treasurer Louis Komoski.

In attendance were also delegations from the North Hudson, Bayonne and Hoboken associations as well as many representatives of manufacturers and wholesalers.

The committee in charge of the memorable event was composed of Louis Komoski, chairman; Jas. T. Brennan, George Cooper, A. Marzullo, J. Edge, John J. Corcoran, Harry Sharrock, James O'Brien and President Jas. J. Conlin as member ex-officio.

Nassau County Master Plumbers Hold Ninth Annual Outing

The Master Plumbers' Association of Nassau County, Long Island, N. Y., held its ninth annual outing at Narragansett Inn, Lindenhurst, Long Island, N. Y., on September 15.

Among those in attendance were: William E. Foley, president of the New York State Association; Nicholas P. Donohoe, secretary of the State Association; M. J. Kennedy, president of the Greater New York Association; John F. Rogers, treasurer of Greater New York Association; Jacob Stockinger, chairman of the Code Compliance Committee of Greater New York; George Arnone, president of the Bronx Association; Wm. Metcalf, president of the Nassau County Association; Wm. J. Bloeth, financial secretary of Nassau County Association; James Metcalf, chairman of the Code Authority of Nassau County; Mrs. Wm. Metcalf and Mrs. Wm. J. Bloeth, president and secretary, respectively, of the New York State Women's Auxiliary; Mrs. Joseph Riedman and Mrs. James Metcalf, president and treasurer of Nassau County Auxiliary; Mrs. Jacob Stockinger, Jr., and Mrs. George Arnone of Bronx.

Chicago Master Plumbers and Supply Men Win Golf Meet from Milwaukee

For the first time in three years the members of the Chicago plumbing fraternity were returned victors in their Joint Tournament with the Milwaukee Plumbing and Heating Club members, which was held at Tuckaway Golf Club at Milwaukee on September 11, winning by a margin of 2494 to 2511. Last year the average score of the players who participated was Milwaukee 104.01, Chicago 104.07. The Tournament was decided on low gross basis, Chicago having 38 golfers to Milwaukee's 25, with an equal number of players matched. The low gross this year for the Chicago Golfers was lower than the net of last year.

By their victory, the Chicago Association will be awarded the Golf Trophy donated by the Milwaukee Association three years ago, and the Duffers' Cup, which has been thrust upon the Chicago men for the past two years, will now be returned to its rightful owner.

There were about 100 present at the tournament. Quite a number from Chicago and Milwaukee did not actively participate, but were there to give encouragement to their respective teams. Among those from Chicago who did not play were George Matthews, Clarence Pullum, William Redieske, William R. Brookman, William Fleming, and S. C. Lasley; and from Milwaukee Louis Friend, Fred Kuetemeyer, A. A. Hoffmann, and others.

With cloudy skies and a slight drizzle in the morning, it did not look very encouraging, but as the day advanced, the weather cleared up nicely, enabling some very good scores to be made on the 18-hole play of the afternoon. George Reeke with a 78 turned in the low gross for the day for Milwaukee, and Joe Comer with a 79 had the low gross score for Chicago, which gave them both the Revere Trophy Cup

When Chicago and Milwaukee golfing plumbers met in intercity match. Top row: F. O. Glas, Milwaukee Valve Co., Milwaukee; F. M. Dawson, University of Wisconsin, Madison; C. R. Lindblad, Chicago; E. F. Olsen, George B. Limbert & Co., Chicago; E. C. Eickhoff, Chase Brass & Copper Co., Milwaukee, and Ed Mortimer, Chicago. Second row: George Wilson, Revere Copper & Brass, Inc., Milwaukee; Frank Fabbri, James B. Clow & Sons, Chicago; E. C. Wagner, Chicago; H. Zein, Milwaukee, and George Bronenkant Milwaukee. Third row: Louis Schmauss, Milwaukee; Jess Stanfiel, Stockham Pipe & Fittings Co., Chicago; A. J. Brielmaier, Milwaukee; H. C. Yelton, Inland Supply Co., Chicago; Louis Weinhagen, Milwaukee, and W. W. Baer, C. F. Church Mfg. Co., Milwaukee. Fourth row: E. Stevenson Chicago; G. Van Eweyk, Milwaukee Brass Mfg. Co., Milwaukee; R. F. Sells, Standard Sanitary Mfg. Co., Chicago; Henry A. Clauson, Lead Industries Bureau, Chicago; A. C. Guhl, Chicago, and George Matthews, Chicago. Fifth row: K. J. Griebel, F. R. Dengel Co., Milwaukee; E. W. Rietz, National Regulator Co., Chicago; W. J. Spillane, James B. Clow & Sons, Chicago; George Fohey, Johns-Manville, Milwaukee, and A. C. Brown, Chicago Faucet Co., Chicago. Sixth row: C. W. Priegel Milwaukee; Henry C. Weber, Milwaukee; Peter Munn, Chicago; W. E. Murphy, Sheboygan; R. J. Weber, Chicago, and W. J. Koepsell, Sheboygan. Seventh row: Art Timm, National Lead Co., Milwaukee; H. A. Wegner, Milwaukee; Joseph Brah, Milwaukee; C. J. Fennig, Milwaukee, and Perry Russell, Chicago. Eighth row: Fred C. Kuetemeyer, Milwaukee; Frank C. King, Madison; Ernest A. Seelman, B. Hoffmann Mfg. Co., Milwaukee; Ben Wenninger, Milwaukee, and N. H. Dengel, F. R. Dengel Co., Milwaukee. Ninth row: F. R. Cordes, Cordes Supply Co., Milwaukee; E. G. Groves, Stockman Pipe & Fittings Co., Chicago; P. H. Sieben, Chicago; G. N. Reeke, American Radiator Co., Milwaukee; H. W. Mollison, National Tube Co., Chicago; F. Gezelschap, Milwaukee, and Joe Comer, Crane Co., Chicago. Tenth row: Charles Dreier, Chicago; Henry P. Reger, Chicago; J. W. McKee, United States Radiator Co., Milwaukee; William Redieske, Eagle-Picher Lead Co., Chicago; Clarence Pullum, Bell & Gossett Co., Chicago. Eleventh row: E. R. Welch, Madison; C. W. Jones, Chicago; I. A. Reeke, Rundle-Spence Mfg. Co., Madison; Glenn P. Tellefsen, Chicago; J. Bradley, Bradley Supply Co., Chicago; Dennis Ganey, Chicago Faucet Co., Chicago

donated by the Revere Copper and Brass Incorporated. The prize winners of low net for Milwaukee were as follows:

A. J. Brielmaier 83, George Wilson 87, F. M. Dawson 97, and K. Greibe 100.

For Chicago: J. Stanfiel 85, Robert Sells 85, Glen Tellefsen 91, and Howard Jacobs 93.

All of these are gross scores.

Those who participated in the match, and upon which the scores of the tournament were based are as follows:

CHICAGO		MILWAUKEE	
Fabbri, Frank	94	Wilson, George	87
Mortimer, Ed	99	Eickoff, E.	97
Comer, Joe	79	Reeke, George	78
Mollison, H. W.	96	Gezelschap, F. T.	82
Munn, Peter	116	Koepsell, W.	110
Weber, R. J.	110	Murphy, W. E.	115
Hackett, Frank	101	Wolff, Al	103
Guldean, John	102	Stock, Hub	102
Rietz, E. W.	96	Griebel, K.	100
Spillane, Wm.	98	Fohey, G.	107
Tellefsen, Glenn	91	Reeke, F. A.	94
Jones, Chas.	101	Welch, E. R.	105
Dreier, Chas.	102	Schmauss, L.	114
Reger, H. P.	102	McKee, Wm.	126
Sieben, Phil	111	Cordes, Fred	107
Grove, Elmer	114	Wagner, Hans	98
Sells, Robert	85	Van Eweyk, G. N.	119
Stevenson, E.	90	Somers, M.	93
Jacobs, Howard	93	Mueller, F.	103
Stewart, R. L.	105	Brielmaier, A. J.	83
Stanfiel, Jess	85	Weinhagen, L.	92
Yelton, Harry	106	Glas, F. O.	96
Olsen, E. F.	114	Dawson, F. M.	91
Lindblad, Carl	105	Stoehr, Geo.	90
Carroll, P.	99	Wenninger, B.	119
	2,494		2,511
Average 99.76		Average 100.44	

In addition to the above, the following is the list of the golfers who played the 18 holes and their individual scores, but which were not included in teams:

Wm. St. Bernard	103	C. J. Fennig	148
James Fettes	95	E. C. Wagner	103
W. Ludwig	88	W. W. Baer	87
R. Sawhill	88	F. J. Lang	81
A. C. Guhl	..	J. Bradley	80
H. C. Clauson	..	A. C. Brown	79
P. Russell	..	D. Ganey	77

At the dinner in the evening, in the absence of George Stoehr, chairman of the Milwaukee Plumbing and Heating Club, and Frank Glas, Chairman of their Golf Committee, Fred Kuetemeyer officiated as toastmaster, and called upon a number present for brief remarks, including H. P. Reger, R. J. Weber, Peter M. Munn, William Redieske of Chicago; and A. J. Brielmaier, Hans Wagner, L. Fleming, L. Schmauss and many others.

Propose Standard Form for Plumbing Ordinance

By JOHN J. CALNAN, President National Association of Master Plumbers

IN LINE with one of the objectives of my administration viz.: to secure proper laws, ordinances and codes to regulate the sale, installation and repair of plumbing materials, I present to the membership the following Standard Ordinance which I have selected from various ordinances which have been submitted to me to accomplish the objects I had in mind. These suggestions have been submitted by the Chairman of our Sanitary Committee and reviewed by the Association's counsel.

The idea incorporated in this Ordinance is modeled after the Birmingham Ordinance, which is covered by articles in the August and September issues of DOMESTIC ENGINEERING, which our members would do well to read, by Joseph W. Pate, in which he endorses the objective contained in my recent Message to the Industry.

It will be noted that this provides for a complete report by all agencies handling plumbing material of any kind (except pipe and fittings). This permits the authorities to check up the ultimate installation of all materials and should, if not eliminate, check "bootleg plumbing" as well as illegal installations.

The Standard Ordinance refers mainly to domestic installations and does not cover factory, mill or industrial installations. This latter type of installation will be covered in another Standard Ordinance clause which will be released shortly.

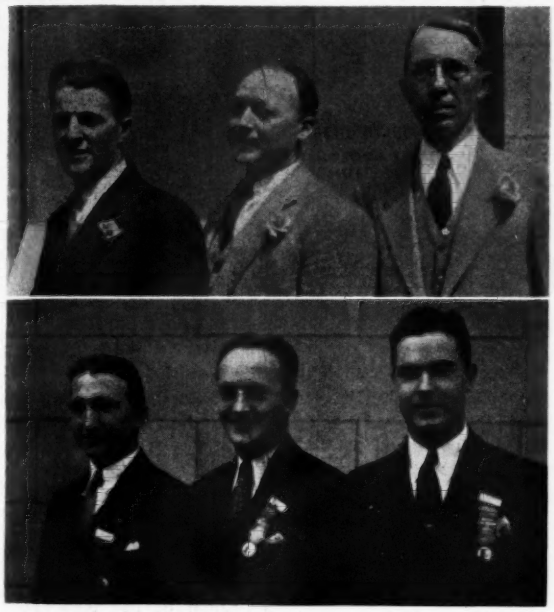
AN ACT TO FURTHER PROTECT THE PUBLIC HEALTH

1. The term "person," as used herein, includes any individual, corporation, partnership, association, firm or other business entity.

2. The term "plumbing fixture," as used herein, includes any of the following articles or any combination thereof: (a) Valves, faucets, cocks, bibbs or spigots, used or intended to deliver water, optionally or automatically, from a domestic or portable water supply line under pressure; (b) water closets, bath tubs, sitz tubs, catch basins, sinks, floor or shower drains, urinals, wash trays, wash basins, lavatories, drinking fountains, dental cuspidors, surgical or hospital or morticians' appliances for disposal of waste by drainage, swimming pools, baptistries, ornamental fountains, hydrants, and generally any and all appliances used or intended as outlets for a domestic or sanitary water supply or as inlets to sewer, soil or surplus waste disposal systems and including gas-fueled cooking or heating apparatus.

3. It shall be unlawful for any person to sell, keep or offer for sale or exchange, any plumbing fixture, new or used, unless the same shall have been approved for use by the office of the Inspector of Plumbing (or other proper local title) and shall have attached thereto, a label, tag or stamp bearing the legend "City of ....., Approved" together with a serial number to correspond with the inspection record items in the office of said Inspector of Plumbing.

4. It shall be unlawful for any person to attach or install for use, or detach, disconnect or remove from use in any building or any part thereof, any plumbing fixture, unless or until such attaching installation, detachment, disconnection or removal has been approved and labeled, tagged or stamped as provided in Section 3 hereof. If there is no serial number or approval upon any such fixture detached, disconnected or removed from use, and such approval shall not be issued in accordance with Section 5 hereof, the Inspector of Plumbing or his duly authorized representative shall label, tag or stamp such fixture "Condemned" and it shall forthwith be rendered unfit for use as a plumbing fixture. Any such



Top row, left to right: William A. Ries, H. C. Sanders and A. C. Obroch, all of American Foundry & Mfg. Co. of St. Louis. Bottom row: L. J. Vogler, A. F. Sheldon and John Dumser, all of Chase Brass & Copper Co.'s branch in St. Louis. From photographs taken at the recent convention of Missouri Master Plumbers' Association

fixture purchased or held as junk or scrap material shall be broken or stripped.

5. Approval of said Inspector of Plumbing and labels, tags or stamps, shall be issued only on written application forms, to be (a) the number and kind of such plumbing fixtures, (b) whether new or second-hand, (c) a showing of right or title to the same, (d) the exact location, within any building or structure, where it is intended to either install for use or remove from use, (e) or where merely held for sale, and (f) such other information as said Inspector of Plumbing may require. Immediately upon receipt of such application, said Inspector of Plumbing or his authorized representative shall make an inspection and, if approved, shall himself attach such label, tag or stamp and proper entry shall be made upon the Plumbing Inspection records of such action. In addition to any fee for inspection, there shall be a fee of five cents for each label, tag or stamp attached, to be covered into the municipal funds as miscellaneous receipts.

6. No person shall purchase, except directly from the manufacturer thereof, nor sell nor exchange any plumbing fixtures unless such purchase or sale or exchange shall, within one week therefrom, be reported to the office of the Inspector of Plumbing together with the number, kind and condition of said fixture, whether new or used, the location on the date of report and the serial number. The possession of any detached plumbing fixture not approved and bearing the aforesaid label, tag or stamp, shall be prima facie evidence of a purpose to violate the provisions of this act; except that a reasonable time shall be allowed after shipments are received directly from a manufacturer, for reporting and inspection.

Triple Clinch Your Work
Use
BOILER NEVERLEAK
The Miracle Liquid

Boiler Neverleak has three big advantages over all others in quickly repairing a leaky boiler. First, it searches out the leak; second, it plugs it; and third, the heat bakes it into a PERMANENT REPAIR.

Boiler Neverleak has no equal; we guarantee every can and the guarantee is backed by a financial responsibility of five million dollars. Ask us for proof of its superiority and we will promptly send it. It will save you time, greatly increase your profits in repairing broken, cracked or leaky boilers, make good friends and create goodwill for you everywhere. And you can be certain there will be no "call backs."

Our guarantee is based upon thirty-one years of experience in making stop-leak compounds.

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LIQUID VENEER CORPORATION
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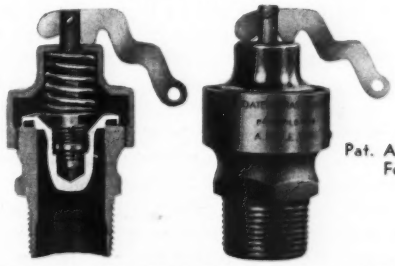

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POP SAFETY VALVE

Built entirely of heavy brass castings except for the oil tempered steel spring plated with Udylite, this valve, No. 2010, is absolutely corrosion-proof and conforms in every way to A. S. M. E. specifications for low pressure (15 lbs.) steam systems.

All machining is handled on a precision basis, maintaining close tolerances. Consequently, regardless of how long the valve remains stationary, it functions promptly when steam pressure rises above the safety point. It opens with a pop and closes again securely when the line has been relieved. Positive shut-off is assured by spring pressure action on the disc below the seat.

This valve may be turned at any angle with the center line of the pipe without interfering with its operation. It may be opened manually by either lifting or depressing the control lever.

For any type of boiler trimmings, including water gauges, compression gauge cocks, syphons, steam gauge cocks, etc., write to

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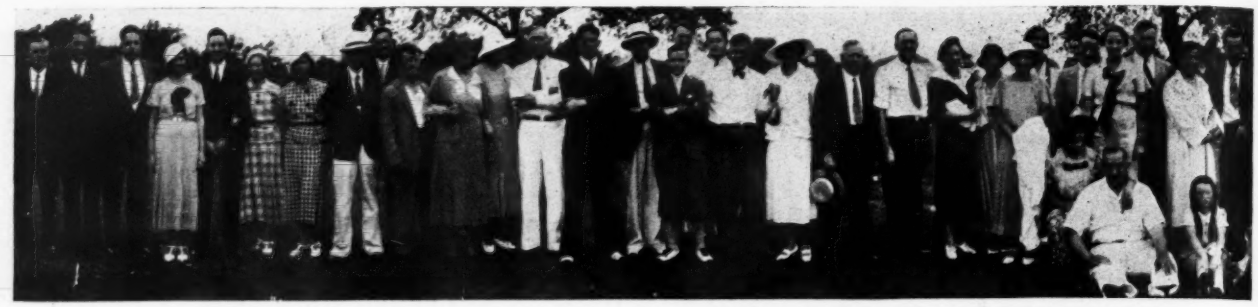
139 Summit Avenue Detroit, Michigan



Group of picnickers at the annual outing of the Queensboro Branch of New York City Master Plumbers' Association

7. The penalty for each violation of any provision of this Act shall be a fine of not less than Fifty Dollars nor more than Five Hundred Dollars; and the City Marshal may be ordered to close and seal any business or other house or other building as a menace to the public health for such time and under such terms and conditions as by the courts may be imposed; provided, however, that before closing or sealing any premises the owner thereof shall be cited to show cause, not to exceed three business days thence, why such action should not be taken.

The foregoing is presented as the type of ordinance calculated to get the best results for the members of the industry. Its use is recommended to all State and Local Associations.

Hudson County Plumbers Entertained by Public Service Co.

Members of the Master Plumbers' Association of Hudson County, N. J., on Thursday evening, September 20, attended a dinner at the Masonic Club as the guests of the Public Service Electric & Gas Company of New Jersey.

Following the dinner, representatives of the Public Service Gas Co. explained the company's new sales plan for co-operating with the master plumbers in the sale of water heaters. They also presented a new scale of commission and allowances to be paid to the master plumber for installation.

The representatives of the Public Service Gas Company who addressed the meeting, were: Division Agent Charles Riesley, who also acted as chairman of the meeting; General Sales Manager Henry J. Steinmetz, and Herbert Bays of the Commercial Department at Bayonne. James Walshe of Welsbach Company also addressed the meeting.

James T. Brennan, secretary of the Jersey City Master Plumbers' Association, acted as toastmaster and introduced the following speakers:

Edmund Ingram, president of the New Jersey State Association; James J. Conlin, president of the Jersey City Association; Fred Baker, president of the North Hudson Association; John Nolan, president of the Bayonne Association, and A. H. Rover, president of the Master Plumbers' Association of Union City.

Queensboro Master Plumbers Hold Thirty-seventh Annual Outing

Members of the Queensboro Branch of the New York City Master Plumbers Association and their families held their thirty-seventh annual outing at Narragansett Inn, Lindenhurst, Long Island, N. Y., on Saturday, August 25. Among those in attendance were Wm. E. Foley, president of the New York State Association of Master Plumbers; George Arnone of the Bronx Association, and many representatives of manufacturers and wholesalers.

The committee in charge of the outing was headed by John F. Rogers, and his assistants were: P. Donohoe, Chas. R. Budrie, Lawrence J. Redmond, Jos. R. Mittasch, Thos. J. Whalen, Jacob Stockinger, Jr., and Robert J. Todd.

The annual base ball game between the Master Plumbers and the Wholesalers was won by the Plumbers with a score of 8 to 5.

Jacob Stockinger, Jr., acting as toastmaster, introduced President Wm. E. Foley and Senator Frank B. Hendel. Senator Hendel was the sponsor of Queens County Code Bill.

Alex J. Brown Dies at 85

Alex J. Brown, veteran secretary of the Manhattan Association of Master Plumbers, died on September 23rd at St. Francis Hospital in the Bronx, where he had been ill for several months. Mr. Brown was eighty-five years of age and came to the association as executive clerk in 1904. He is known to have, practically single-handed, doubled the membership of the Manhattan Association. Previous to the above connection he had been an entertainer and coach in amateur theatricals.

Another group of picnickers at the annual outing of the Queensboro Branch of New York City Master Plumbers' Association

NRA Approves Plumber Code Set-up for 11 More States

Louisiana—Massachusetts—Michigan—Minnesota—Missouri—New Jersey—New York—Oklahoma—Pennsylvania—Rhode Island—Tennessee

(M) Indicates representatives of N. A. M. P. (NM) Indicates representatives of non-members.

LOUISIANA

Division of the State

ZONE 1. (Counties) Caddo, Bossier, Claiborne, Lincoln, Jackson, Bienville, Webster, Red River, DeSoto, Sabine, Natchitoches, Winn.

ZONE 2. (Counties) Union, Morehouse, West Carroll, East Carroll, Ouachita, Richland, Madison, Tensa, Caldwell, Franklin.

ZONE 3. (Counties) Grant, LaSalle, Catahoula, Concordia, Avoyelles, Rapides.

ZONE 4. (Counties) Vernon, Beauregard, Allen, Calcasieu, Jefferson Davis, Cameron.

ZONE 5. (Counties) Evangeline, St. Landry, Acadia, Lafayette, St. Martin, St. Mary, Iberia, Vermilion.

ZONE 6. (Counties) Point Coupee, West Feliciana, W. Baton Rouge, East Feliciana, E. Baton Rouge, St. Helena, Livingston, Ascension, Iberville.

ZONE 7. (Counties) Tangipahoa, Washington, St. Tammany, Assumption, St. James, St. John the Baptist, St. Charles, LaFourche, Terre Bonne, Orleans, St. Bernard, Plaquemines, Jefferson.

State Code Compliance Committee

L. C. de Leon (Chairman) (M), 624 Gravier Street, New Orleans, La.

T. E. Hodges (M), Shreveport, La.

Wm. J. Riley (M), 105 Carolina Street, Monroe, La.

Preston Brasher (M), 919—2nd Street, Alexandria, La.

Ray T. Craft (M), 318-320 Broad Street, Lake Charles, La.

Raymond H. Casey (M), Front & Laurel Streets, Baton Rouge, La.

H. H. Gammill (N. M.), Shreveport, La.

E. H. Loubat (N. M.), New Orleans, La.

Paul Escudier (N. M.), Lafayette, La.

Zone Code Compliance Committees

ZONE 1

C. E. Richardson (M), 155 Western Avenue, Shreveport, La.

Ed. Rodenhouse (M), 939 Louisiana Avenue, Shreveport, La.

Ed. Schilling (N. M.), 244 Prospect Street, Shreveport, La.

ZONE 2

To be temporarily handled by Zone 1 Committee.

ZONE 3

Mrs. G. W. Zoder (M), 214 Fourth Street, Alexandria, La.

A. E. Berlin (M), 1016 Wisteria Street, Alexandria, La.

Ashton Wunsch (N. M.), Alexandria, La.

ZONE 4

Barbe Goudeau (M), Lake Charles, La.

J. R. Miles (M), Lake Charles, La.

Jas. Bult (N. M.), Lake Charles, La.

ZONE 5

To be temporarily handled by Zone 6 Committee.

L. C. DeLeon

ZONE 6

L. M. Sims (M), baton Rouge, La.

Alton Holden (M), Baton Rouge, La.

J. H. Smith (N. M.), Slaughter, La.

ZONE 7

A. J. Sciambra (M), 636 N. Broad Street, New Orleans, La.

Jas. F. O'Neil (M), 835 Baronne Street, New Orleans, La.

Wilton M. Ellin (N. M.), 1410 Roberts Street, New Orleans, La.

MASSACHUSETTS

Division of State

ZONE 1. (County) Berkshire.

ZONE 2. (County) Franklin.

ZONE 3. (County) Hampshire.

ZONE 4. (County) Hampden.

ZONE 5. (County) Worcester.

ZONE 6. (County) Middlesex, except towns included in Zone 8.

ZONE 7. (County) Essex.

ZONE 8. (Counties and Cities) Suffolk, Norfolk and the cities and towns of: North Reading Reading, Wilmington, Wakefield, Woburn, Burlington, Stoneham, Melrose, Malden, Everett, Winchester, Lexington, Arlington, Belmont, Somerville, Cambridge, Watertown, Waltham, Weston, Newton, Medford (all in Middlesex County) and Hingham in Plymouth County.

ZONE 9. (County) Bristol.

ZONE 10. (County) Plymouth (Except city of Hingham).

ZONE 11. (Counties) Barnstable, Duke, Nantucket.

State Code Compliance Committee

John J. Downey (Chairman) (M), 791 Tremont Street, Boston, Mass.

Wm. A. Burns (M), 36 Bartlett Street, Worcester, Mass.

Wm. J. Hyland (M), 151 Dwight Street, Springfield, Mass.

Thos. J. Johnson (NM), 257 Broadway, Boston, Mass.

Elwood Noyes (NM), 19 Savoy Street, Salem, Mass.

Walter P. Bailey (M), 216 Acushnet Avenue, New Bedford, Mass.

Franklin E. Darling (M), 9 Summerfield Street, Fall River, Mass.

Edward T. O'Day (M), 181 Highland Avenue, Lowell, Mass.

Arthur C. Moseley (NM), 47 Main Street, Westfield, Mass.

Zone Code Compliance Committees

ZONE 1

James E. Cashin (M), 38 Park Street, Adams, Mass.

Jos. H. Johnson (M), Church Street, Lenox, Mass.

Thos. H. Nolan (NM), 68 Third Street, Pittsfield, Mass.

ZONE 2

Chas. F. Peck (M), 55 Federal Street, Greenfield, Mass.

Chas. J. Carpenter (M), Main and River Streets, Colrain, Mass.

Elvin W. Train (NM), 36 Water Street, Orange, Mass.

ZONE 3

James W. O'Connor (M), 33 State Street, Northampton, Mass.

Wm. A. Brownell (M), 94 Pleasant Street, Northampton, Mass.

Edwin C. Addis (NM), 63 Main Street, Florence, Mass.

ZONE 4

Matthew J. Doherty (M), 747 Dwight Street, Holyoke, Mass.

Jos. Singleton (M), 403 Dickinson Street, Springfield, Mass.

James J. Cotter (NM), 95 Traylor Street, Springfield, Mass.

ZONE 5

W. H. Dolan (M), 17 Putnam Street, Fitchburg, Mass.

Ernest R. Holmes (M), Cor. Portland & Myrtle Streets, Worcester, Mass.

John J. Cahill (NM), 10 Oxford Street, Worcester, Mass.

ZONE 6

Wm. F. Farrell (M), 36 Thorndike Street, Lowell, Mass.

Wm. H. McElholm (M), 465 Westford Street, Lowell, Mass.

Chas. H. Hobson (NM), 158 Middle Street, Lowell, Mass.

ZONE 7

Geo. E. Ryan, 45 Andrews Street, Lynn, Mass.

Wm. G. N. Tyrie (M), 48 How Street, Haverhill, Mass.

E. S. Doane (NM), 120 Washington Street, Marblehead, Mass.

ZONE 8

Chas. B. Tucker (M), 249 Harvard Street, Brookline, Mass.

John E. Swenson (M), 450-R Massachusetts Avenue, Arlington, Mass.

Chas. H. O'Neil (NM), 123 Adams Street, Waltham, Mass.

ZONE 9

Thos. Helme (M), 231 New Boston Road, Fall River, Mass.

Edmund T. Fitzgerald (M), 30 Second Street, Taunton, Mass.

Jas. F. Collins (NM), 1594 Purchase Street, New Bedford, Mass.

ZONE 10

Arthur L. Brooks (M), 82 Crescent Street, Brockton, Mass.

Fred G. Bliss (M), Bliss Hardware Company, Plymouth, Mass.

Loren C. Nass (NM), Washington Street, Duxbury, Mass.

ZONE 11

Horatio S. Bond (M), 39 Pearl Street, Hyannis, Mass.

Walter Emery (M), Harwich, Mass.

Alexander Pate (NM), 357 Main Street, Hyannis, Mass.

MICHIGAN

Division of the State

ZONE 1. (Counties Ontonagon, Gogebic, Keweenaw, Houghton, Baraga, Iron, Marquette, Dickinson, Menominee, Delta, Alger, Schoolcraft, Luce, Mackinac, Chippewa, Emmet, Charlevoix, Antrim, Grand Traverse.

ZONE 2. (Counties) Benzie, Manistee, Leelanau.

ZONE 3. (Counties) Wexford, Missaukee, Kalkaska, Crawford, Oscoda, Alcona, Alpena, Montmorency, Otsego, Cheboygan, Presque Isle.

ZONE 4. Temporarily divided between zones No. 3 and No. 7.

ZONE 5. (Counties) Mason, Lake, Osceloa, Clare.

ZONE 6. (Counties) Oceana, Muskegon, Newaygo, Mecosta.

ZONE 7. (Counties) Isabella, Midland, Bay, Arenac, Gladwin, Roscommon, Ogeman, Iosco.

ZONE 8. Temporarily divided between zones No. 9 and No. 12.

ZONE 9. (Counties) Gratiot, Saginaw, Tuscola, Sanilac, Huron.

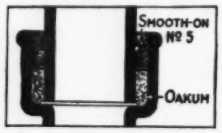
ZONE 10. (Counties) Kent, Ionia, Montcalm.

ZONE 11. (Counties) Clinton, Shiawassee.

ZONE 12. (Counties) Genesee, Lapeer, St. Clair.

ZONE 13. (Counties) Ottawa, Allegan.

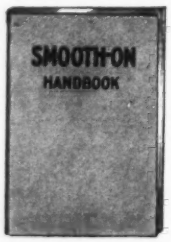
For caulked bell-and-spigot joints at difficult locations, use Smooth-On No. 5



WHERE caulking with lead would be difficult, as in making joints in corners, confined places and horizontal lines, Smooth-On No. 5 makes a tight joint with least effort, and no fire risk or danger of burns. Applied cold like a putty and dependable on soil, gas, steam and hot or cold water pipes. Buy in 1 or 5-lb. can, or 25 or 100-lb. steel keg.

Write for the Smooth-On Handbook

136 Pages of instructions, diagrams and useful information for plumbers, heating contractors, shop managers and power plant engineers. Tells what you want to know about making tight joints at pipe connections, seams, cracks, etc., making loose parts tight, anchoring in wood, masonry and metal, etc. The methods outlined save time, labor and material and represent the best practice. Keep a copy on your desk.



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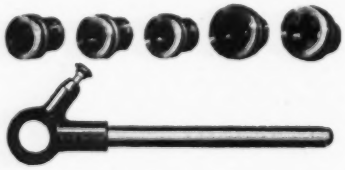
570 Communipaw Ave., Jersey City, N. J.

***Do it with* SMOOTH-ON**

NYE TOOLS

Nye "TRIAD" Stock

RATCHET TYPE



FURNISHED with Nye solid round dies, held in place by two stationary pins built in head to prevent their turning, and locked in by threaded cap, easily removed by a few right hand turns.

Dies reversible for threading close nipples, special bushings provided for this purpose.

No. 50 has capacity ⅛" to ¾" *and for the operator requiring larger range No. 60 has capacity ⅛" to 1¼".*

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4120-30 Fullerton Avenue, Chicago, Ill., U. S. A.

ZONE 14. (Counties) Barry, Kalamazoo.
ZONE 15. (Counties) Eaton, Calhoun.
ZONE 16. (Counties) Ingham, Livingston.
ZONE 17. (Counties) Oakland, Macomb.
ZONE 18. Not announced.
ZONE 19. (County) Wayne.
ZONE 20. (Counties) Washtenaw, Monroe.
ZONE 21. (Counties) Jackson, Lenawee.
ZONE 22. (Counties) St. Joseph, Branch, Hillsdale.
ZONE 23. (Counties) Van Buren, Berrien, Cass.

State Code Compliance Committee

Wm. A. Decker (Chairman) (M), 12 Oakes Street, S. W., Grand Rapids, Mich.
Howard B. Reed (M), 252 W. Cortland Street, Jackson, Mich.
Chas. M. Rolfe (M), 223 E. Michigan Street, Battle Creek, Mich.
Frank B. Lent (M), 210 South Park Street, Saginaw, Mich.
Henry Kraker (M), 54 W. 14th Street, Holland, Mich.
Edward M. Harrigan (M), 1365 Baker Street, Detroit, Mich.
Raleigh E. Benson (N. M.), St. Johns, Mich.
Carl H. Dean (N. M.), 1045 Henry Street, Detroit, Mich.
Fred Workman (N. M.), Ionia, Mich.

Zone Code Compliance Committee

ZONE 1
Robert R. Bonthron (M), 104 Bridge Street, Charlevoix, Mich.
J. E. Bain (M), 326 Lake Street, Petoskey, Mich.
L. C. Meade (N. M.), R. R. No. 1, Traverse City, Mich.

ZONE 2
Otto Justmann (M), 133 Washington Street, Manistee, Mich.
Geo. Goudie (M), 50 Division Avenue, Manistee, Mich.
Ray Edwards (N. M.), Elberta, Mich.

ZONE 3
E. J. Morgan (M), 120 Mitchell Street, Cadillac, Mich.
Art Hilliar (M), Mitchell Street, Cadillac, Mich.
Evald Peterson (N. M.), Howard Street, Cadillac, Mich.

ZONE 4
Temporarily divided between zones No. 3 and No. 7.

ZONE 5
Harry Smith (M), 114 W. Ludington Avenue, Ludington, Mich.
John Claussen (M), 116 South James Street, Ludington, Mich.
Wm. Paddleford (N. M.), Scottville, Mich.

ZONE 6
Herbert Reid (M), 1417 Peck Street, Muskegon Heights, Mich.
N. J. Yonker (M), 1147 Third Street, Muskegon Heights, Mich.
Stanley Payne (M), 701 Hoyt Street, Muskegon Heights, Mich.

ZONE 7
Bert Lindabaum (M), 601 Patterson Avenue, Bay City, Mich.
Phil Couture (M), 1016 Marquette Avenue, Bay City, Mich.
George McIntosh (N. M.), Bay City, Mich.

ZONE 8
Temporarily handled by zones No. 9 and No. 12.

ZONE 9
Alfred Mitchell (M), 1001 Atwater Street, Saginaw, Mich.
Wm. Brenske (M), 2725 W. Washington, Saginaw, Mich.
Adolph Neuchterlin (N. M.), Frankenmuth, Mich.

ZONE 10
Peter A. Pipe (M), 736 Division Avenue, S. E., Grand Rapids, Mich.
John L. Petersen (M), 1610 Colt Avenue, N. E., Grand Rapids, Mich.
Robert J. Smith (N. M.), 114 Washington Street, Greenville, Mich.

ZONE 11
DeForest Benson (M), 126 South Water Street, Owosso, Mich.
Fred Himburg (M), 904 W. Main Street, Owosso, Mich.
James Ferry (N. M.), Perry, Mich.

ZONE 12
William Ames (M), 111 West Second Street, Flint, Mich.
Seymour Wright (M), 3807 N. Saginaw Street, Flint, Mich.
F. M. Parks (N. M.), Flushing, Mich.

ZONE 13
Jack Knoll (M), 17 East 8th Street, Holland, Mich.
David Damstra (M), 206 College Avenue, Holland, Mich.
Albert Ruiter (N. M.), 517 Elliot Street, Grand Haven, Mich.

ZONE 14
Harry Van de Wolder (M), 432 W. Michigan Avenue, Kalamazoo, Mich.
Albert Redmond (M), 249 N. Burdick Street, Kalamazoo, Mich.
Floyd A. Brown (N. M.), 109 West State Street, Hastings, Mich.

ZONE 15
Bert B. Stevens (M), 79 Harvard Street, Battle Creek, Mich.
Jos. Leyden (M), 108 W. Michigan Avenue, Marshall, Mich.
Chas. W. Parrish (N. M.), Charlotte, Mich.

Wm. A. Decker

ZONE 16
Foster Whitmyer (M), 411 N. Washington Avenue, Lansing, Mich.
W. C. Noyes (M), 934 N. Walnut Street, Lansing, Mich.
Fred Strudley (N. M.), Lansing, Mich.

ZONE 17
Russell Eames (M), 55 E. Pike Street, Pontiac, Mich.
Ark Moss (M), 5759 Chicago Road, Warren, Mich.
Henry Heptner (N. M.), Milford, Mich.

ZONE 18
Not yet announced.

ZONE 19
John E. Green (M), 11820 Brust Street, Detroit (H. P.), Mich.
George Russell (M), 10436 Kercheval, Detroit, Mich.
Roy W. Adams (N. M.), 3009 Gratiot Avenue, Detroit, Mich.

ZONE 20
G. A. Raiser (M), 214 S. Division Street, Ann Arbor, Mich.
A. F. Hutzel (M), 119 E. Washington Street, Ann Arbor, Mich.
E. Burnett (N. M.), Monroe, Mich.

ZONE 21
Fred Sturmer (M), 1011 Lansing Avenue, Jackson, Mich.
Chris Schlenker (M), 201 S. Grinnell Street, Jackson, Mich.
Wm. James (N. M.), Adrian, Mich.

ZONE 22
W. A. McMillan (M), 30 S. Monroe Street, Coldwater, Mich.
Ray Ruckle (M), White Pigeon, Mich.
George Spinner (N. M.), Hillsdale, Mich.

ZONE 23
Doyle M. Hinckley (M), 145 S. Front Street, Dowagiac, Mich.
Grover D. Price (M), 177 Pipestone Street, Benton Harbor, Mich.
James E. Boothby (N. M.), Benton Harbor, Mich.

MINNESOTA

Division of the State

ZONE 1. (Counties) Washington, Ramsey, Dakota.

ZONE 2. (Counties) Anoka, Hennepin, Scott.

ZONE 3. (Counties) Cook Lake, Carlton and that part of St. Louis county south of Stuntz, McDavitt, Ellsburg, Colvin and Ault townships.

ZONE 4. (Counties) Koochiching, Itasca and that part of St. Louis county north of the south boundary of Stuntz, McDavitt, Ellsburg, Colvin and Ault townships.

ZONE 5. (Counties) Houston, Winona, that part of Wabasha county south of the Zumbro River, and that part of Fillmore county east of Chatfield, Fountain, Carimona and Bristol townships.

ZONE 6. (Counties) Pipestone, Murray, Cottonwood, Rock, Nobles, Jackson.

ZONE 7. (Counties) Watonwan, Martin, Faribault.

ZONE 8. (Counties) Freeborn, Mower, and that part of Fillmore county west of the east boundary of Chatfield, Fountain, Carimona and Bristol townships.

ZONE 9. (Counties) Dodge, Olmsted.

ZONE 10. (Counties) Goodhue and that part of Wabasha county north of the Zumbro River.

ZONE 11. (Counties) Le Sueur, Rice, Waseca, Steele.

ZONE 12. (Counties) Blue Earth, Brown, Nicolett.

Zone 13. (Counties) Redwood, Lyon, Lincoln, Yellow, Medicine.

ZONE 14. (Counties) Renville, McLeod, Sibley, Carver.

ZONE 15. (Counties) Wright, Sherburne, Benton, Stearns.

ZONE 16. (Counties) Big Stone, Lac Qui Parle, Chippewa, Swift, Kandiyohi, Meeker.

ZONE 17. (Counties) Wilkins, Otter Tail, Traverse, Grant, Douglas, Stevens, Pope.

ZONE 18. (Counties) Wadena, Todd.

ZONE 19. (Counties) Morrison, Mille Lacs, Aitkin, Crow Wing, and that part of Cass county south of Deerfield, Powers and Ponto Lake townships.

ZONE 20. (Counties) Chisago, Isanti, Kanabec, Pine.

ZONE 21. (Counties) Lake of the Woods, Beltrami, Clearwater, Hubbard and that part of Cass county north of the south line of Deerfield, Powers and Ponto Lake townships.

ZONE 22. (Counties) Becker, Clay, Mahnomen, Norman.

ZONE 23. (Counties) Polk, Red Lake, Pennington, Marshall, Roseau, Kittson.

State Code Compliance Committee

H. M. Porter (Chairman) (M), 65 N. 17th Street, Minneapolis, Minn.

H. C. Hanson (M), Virginia, Minn.

R. L. Anderson (M), 519 No. Cleveland, St. Paul, Minn.

Otto Nelson (M), 2137 Lowry Avenue, North, Minneapolis, Minn.

Walter Krost (M), Fairmont, Minn.

W. L. Neihart (M), 2101 Como Avenue, St. Paul, Minn.

Wm. F. Meuerer (N. M.), 1515 Hennepin Avenue, Minneapolis, Minn.

Bernard G. Witt (N. M.), Winona, Minn.

Axel Peterson (N. M.), 820 Payne Avenue, St. Paul, Minn.

Zone Code Compliance Committees

ZONE 1

Walter Dahlby (M), 624 E. Nevada Street, St. Paul, Minn.

Adolph Shetka (M), 571 W. 7th Street, St. Paul, Minn.

Fred Beier (N. M.), 743 Selby Avenue, St. Paul, Minn.

ZONE 2

Fred G. Stiller (M), 129 S. 10th Street, Minneapolis, Minn.

E. A. Lamb (M), 244—2nd Avenue, South, Minneapolis, Minn.

Joe Barberry (N. M.), 817 West Broadway, Minneapolis, Minn.

ZONE 3

Martin Wold (M), 9 West 1st Street, Duluth, Minn.

Alex Plaunt (M), 121 N. 1st Avenue, Duluth, Minn.

L. M. Brugger (N. M.), 315 E. 8th Street, Duluth, Minn.

ZONE 4

Andrew Cherne (M), Eveleth, Minn.

Wm. E. Heisel (M), Virginia, Minn.

Adam Schirmer (N. M.), Hibbing, Minn.

ZONE 5

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Fred Sherman (M), Winona, Minn.

Frank O'Laughlin (N. M.), Winona, Minn.

ZONE 6

W. H. Fritz (M), Luverne, Minn.

J. H. See (M), Worthington, Minn.

Melvin H. Porter

W. G. Ebert (N. M.), Windom, Minn.

ZONE 7

Temporarily handled by Zone 6 Committee.

ZONE 8

J. G. Mehl (M), 226 W. Clark Street, Albert Lea, Minn.

H. J. Williams (M), 300 West Water, Austin, Minn.

Frank R. Arnold (N. M.), Albert Lea, Minn.

ZONE 9

Temporarily to be handled by Zone 5 Committee.

ZONE 10

Temporarily to be handled by Zone 5 Committee.

ZONE 11

Temporarily handled by the Zone 12 Committee.

ZONE 12

R. J. Krost (M), Mankato, Minn.

D. C. Cuddy (M), Mankato, Minn.

C. M. Northrup (N. M.), Mankato, Minn.

ZONE 13

Temporarily to be handled by Zone 6 Committee.

ZONE 14

Temporarily to be handled by Zone 2 Committee.

ZONE 15

Temporarily to be handled by Zone 2 Committee.

ZONE 16

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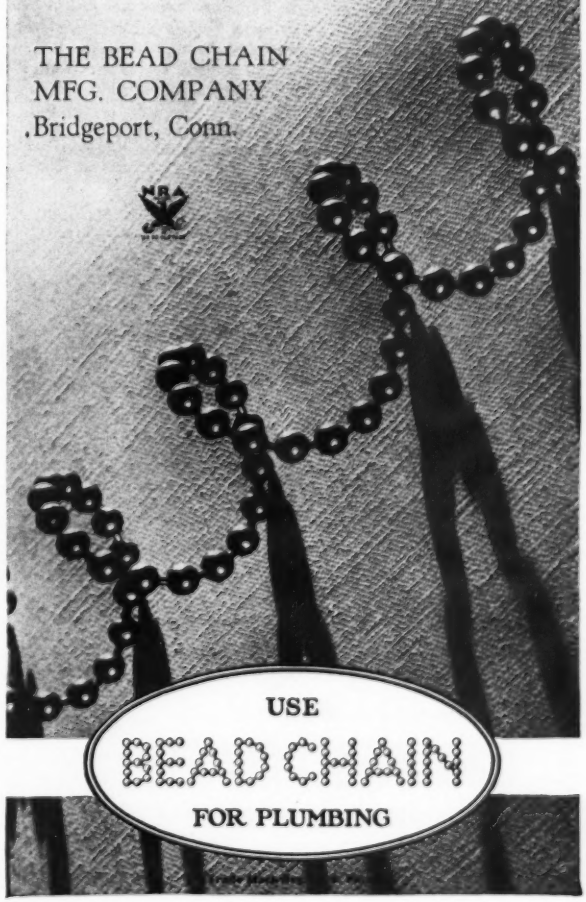

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F. M. Renner (N. M.), Alexandria, Minn.

ZONE 18

Temporarily to be handled by Zone 17 Committee.

ZONE 19

Temporarily to be handled by Zone 2 Committee.

ZONE 20

Temporarily to be handled by Zone 1 Committee.

ZONE 21

Temporarily to be handled by Zone 4 Committee.

ZONE 22

Temporarily to be handled by Zone 17 Committee.

ZONE 23

Temporarily to be handled by Zone 4 Committee.

MISSOURI

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ZONE 2. (Counties) Montgomery, Lincoln, Warren, St. Charles.

ZONE 3. City of St. Louis.

ZONE 4. (Counties) St. Louis, Jefferson.

ZONE 5. (Counties) St. Francois, Ste. Genevieve, Perry, Madison, Iron, Reynolds, Cape Girardeau, Bollinger.

ZONE 6. (Counties) Scott, Stoddard, Mississinni, New Madrid, Dunklin, Pemiscot.

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ZONE 9. (Counties) Randolph, Monroe, Howard, Boone, Audrian, Callaway.

ZONE 10. (Counties) Mercer, Putnam, Schuyler, Grundy, Sullivan, Adair, Livingston, Linn, Macon, Carroll, Chariton, Saline.

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ZONE 14. (Counties) Platte, Clay, Ray, Jackson, La Fayette, Cass, Johnson, Bates.

ZONE 15. (Counties) Atchison, Nodaway, Worth, Harrison, Gentry, Holt, Andrew, De Kalb, Daviess, Buchanan, Clinton, Caldwell.

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Paul Groeschel (M), 217 No. Lafayette, Marshall, Mo.
J. S. Levine (M), 4712 Troost Avenue, Kansas City, Mo.
J. H. Boyd (M), 210 E. Commercial, Springfield, Mo.
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C. C. Marti (N. M.), Tarkio, Mo.
Chas. Matthews (N. M.), Columbia, Mo.
Chas. A. Weber (N. M.), 5102 Delmar Avenue, St. Louis, Mo.

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E. L. Siebel (M), 315 Broadway, Hannibal, Mo.
Earl Davis (N. M.), Hannibal, Mo.

ZONE 2

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ZONE 3

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J. F. Corrigan (M), 2501 West St. Louis Avenue, St. Louis, Mo.
Wm. F. Crane (N. M.), 1718 Wagner Place, St. Louis, Mo.

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Mort Jacobs (M), 9144 Shelly, Overland, St. Louis County, Mo.
Dan Kelly (N. M.), Kirkwood, St. Louis County, Mo.

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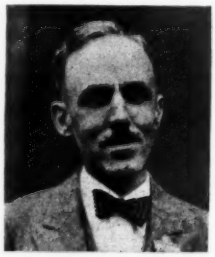
Irvin Meyer (M), Cape Girardeau, Mo.
C. L. Hunze (N. M.), Cape Girardeau, Mo.

ZONE 6

A. P. Campbell (M), 303 Carlton Avenue, Caruthersville, Mo.
L. T. Davey (M), Sikeston, Mo.
A. B. Bryant (N. M.), Hayti, Mo.

ZONE 7

H. J. Morrison (M), Poplar Bluffs, Mo.
Carl Bulow (M). Poplar Bluffs, Mo.
J. W. Greer (N. M.), Poplar Bluffs, Mo.



Edw. Monteath

ZONE 8

Paul Schultz (M), 227 East Capitol, Jefferson City, Mo.
Herman Flessa (M), 317 Hickory, Jefferson City, Mo.
Tom Donahue (N. M.), 723 W. Main Street, Jefferson City, Mo.

ZONE 9

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J. F. Bass (M), 519 Nichols Street, Fulton, Mo.
Tom Ball (N. M.), Fulton, Mo.

ZONE 10

Paul Groeschel (M), 217 N. Fayette Street, Marshall, Mo.
B. A. Grube (M), 302 N. Kansas Avenue, Marceline, Mo.
Ray Sevier (N. M.), Milan, Sullivan County, Mo.

ZONE 11

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C. B. Sherman (N. M.), Clinton, Mo.

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J. B. McCarthy (M), 401 Woodruff Building, Springfield, Mo.
Fred Jones (N. M.), 401 Woodruff Building, Springfield, Mo.

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ZONE 3. (Counties) Camden, Cumberland, Burlington, Gloucester, Salem, Atlantic, Ocean, Cape May.

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ZONE 3. (Counties) Payne, Creek, Lincoln, Okfuskee, McIntosh, Okmulgee, Pawnee, Washington, Osage.

ZONE 4. (Counties) Hughes, Coal, Pittsburg, LeFlore, McCurtain, Choctaw, Pushmataha, Latimer, Haskell.

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ZONE 8. (Counties) Oklahoma.

ZONE 9. (Counties) Kingfisher, Logan, Noble, Garfield, Grant, Kay.

ZONE 10. (Counties) Blaine, Custer, Roger Mills, Dewey, Major, Alfalfa.

ZONE 11. (Counties) Woods, Woodward, Ellis, Harper, Beaver, Texas, Cimarron.

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W. J. Harris (M), 126 N. Oklahoma Avenue, Mangum, Okla.

R. L. Dennis (M), 306 N. Grand, Enid, Okla.

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Charles R. Crawford (N. M.), Claremont, Okla.

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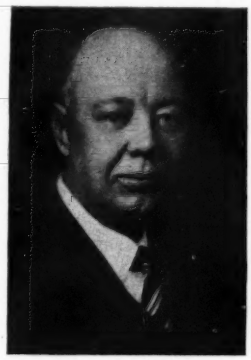
A. Bailey (M), 711 N. Gillette, Tulsa, Okla.

Frank S. Kelly (N. M.), 1215 E. 5th Place, Tulsa, Okla.



H. O. Green

ZONE 2

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J. P. Mercer (M), 223 W. Illinois, Vinita, Okla.

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ZONE 3. (Counties) Niagara, Orleans.

ZONE 4. (Counties) Genesee, Wyoming.

ZONE 5. (Counties) Monroe, Livingston, Wayne.

ZONE 6. (County) Steuben.

ZONE 7. (Counties) Ontario, Seneca, Yates.

ZONE 8. (Counties) Schuyler, Chemung.

ZONE 9. (Counties) Tioga, Broome.

ZONE 10. (Counties) Tompkins, Cortland.

ZONE 11. (County) Cayuga.

ZONE 12. (County) Onondaga.

ZONE 13. (County) Oswego.

ZONE 14. (Counties) Jefferson, Lewis.

ZONE 15. (County) St. Lawrence.

ZONE 16. (Counties) Franklin, Clinton, Essex.

ZONE 17. (Counties) Oneida, Madison.

ZONE 18. (Counties) Hamilton, Herkimer.

ZONE 19. (Counties) Warren, Saratoga, Washington.

ZONE 20. (Counties) Fulton, Montgomery, Schenectady.

ZONE 21. (Counties) Chenango, Otsego.

ZONE 22. (Counties) Schoharie, Albany, Greene.

ZONE 23. (Counties) Rensselaer, Columbia.

ZONE 24. (Counties) Delaware, Sullivan.

ZONE 25. (Counties) Ulster, Dutchess.

ZONE 26. (Counties) Orange, Rockland.

ZONE 27. (Counties) Westchester, Putnam.

ZONE 28. (Counties) Bronx, New York, Kings, Queens, Richmond.

ZONE 29. (County) Nassau.

ZONE 30. (County) Suffolk.

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William Von Bartheld (NM), 1014 First Avenue, New York City.

F. Wider (NM), Rochester, N. Y.

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William L. Naughton (NM), 527 Midland Avenue, Syracuse, N. Y.

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George White (NM), Hall Road, Oswego, N. Y.

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Thos. Reynolds (M), 160 Court Street, Watertown, N. Y.
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William Clark (NM), 212 Franklin Street, Watertown, N. Y.

ZONE 15

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W. H. Wilkinson (M), 458 East Walnut Street, Oneida, N. Y.

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Carl Metzer (M), S. Washington Street, Herkimer, N. Y.
Harry Folts (M), 216 Bellinger Avenue, Herkimer, N. Y.

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Hiram J. Freeman (M), 61 Lawrence Street, Saratoga, N. Y.
George Tracy (NM), 76-78 Milton Avenue, Ballston Spa, N. Y.

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Harry Taube (M), 15½ S. Perry Street, Johnstown, N. Y.
Del Van Woeart (NM), 50 Marriott Avenue, Schenectady N. Y.

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J. F. Evans (M), 28 East Street, Oneonta, N. Y.
W. E. McGowan (NM), Cooperstown, N. Y.

ZONE 22

James H. Doody (M), 286 South Pearl Street, Albany, N Y.
Albian J. Eckert (M), 103 N. Lake Avenue, Albany, N. Y.
Morris Kramer (NM), 466 Madison Avenue, Albany, N. Y.

ZONE 23

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Chas. Schermerhorn (M), 32 2nd Street, Troy, N. Y.
Harold Shields (NM), 215 River Street, Troy, N. Y.

ZONE 24

R. D. Yaun (M), Liberty, N. Y.
Jack Leader (M), Liberty, N. Y.
Sidney Kinne (NM), 41 Grant Street, Liberty, N. Y.

ZONE 25

Geo. L. Sutton (M), 34 Cannon Street, Poughkeepsie, N. Y.
Edward Coffee (M), 22 Van Duesen Avenue, Kingston, N. Y
Samuel White (NM), Staatsburg, N. Y.

ZONE 26

Walter T. Hawkins (M), 67 East Main Street, Middletown, N. Y.
Charles D. Romaine (M), 448 Broadway, Newburgh, N. Y.
H. Hoyle (NM), 140 Main Street, Nyack, N. Y.

ZONE 27

A. H. Karl (M), 283 East 3rd Street, Mount Vernon, N. Y.
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Grant Archibald (NM), New Rochelle, N. Y.

ZONE 28

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Philip Weinsimer (M), 136 East 30th Street, New York City
Emil Siekmann (M), 336 Jersey, Staten Island, N. Y.
Charles Mentzinger (M), 354 Broadway, Brooklyn, N. Y.
S. G. Arnone (M), 600 E. 183rd Street, Bronx, N. Y.
William McNaugh (M), 261 Meach 83rd Street, Rockaway Beach, N. Y.
Harry Hemlin (NM), 144 W. 99th Street, New York City.
William Crosson (NM), 150 St. Louis Avenue, Staten Island, N. Y.
F. A. Hutchingson, Jr. (NM), 2175 Clarendon Road, Brooklyn, N. Y.

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John Curley (M), Glen Cove Avenue, Sea Cliff, Long Island, N. Y.
John P. Coyle (NM), 147 East Park Street, Long Beach, Long Island, N. Y.

ZONE 30

D. T. Tuthill (M), 448 New York Avenue, Huntington, Long Island, N. Y.
Fred Samford (M), Bridgehampton, Long Island, N. Y.
Louis Holtje (NM), 27 Second Avenue, Bay Shore, Long Island, N. Y.

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Division of the State

ZONE 1. (County) Philadelphia.
ZONE 2. (Counties) Bucks, Muntgomery.
ZONE 3. (Counties) Northampton, Lehigh.
ZONE 4. (Counties) Pike, Monroe.
ZONE 5. (Counties) Susquehanna, Wayne, Lackawanna.
ZONE 6. (Counties) Wyoming, Luzerne.
ZONE 7. (Counties) Schuylkill, Carbon.
ZONE 8. (County) Berks.
ZONE 9. (Counties) Chester, Delaware.
ZONE 10. (County) Lancaster.
ZONE 11. (Counties) Adams, York.
ZONE 12 (Counties) Lebanon, Dauphin.
ZONE 13 (Counties) Northumberland, Columbia, Montour.
ZONE 14. (Counties) Tioga, Bradford, Lycoming, Sullivan.
ZONE 15. (Counties) Union, Snyder.
ZONE 16. (Counties) Mifflin, Juniata, Perry.
ZONE 17. (Counties) Franklin, Cumberland.
ZONE 18. (Counties) Huntingdon, Fulton.
ZONE 19. (Counties) Clinton, Centre.
ZONE 20. (Counties) McKean, Potter, Cameron.
ZONE 21. (Counties) Elk, Clearfield.
ZONE 22. (Counties) Blair, Bedford.
ZONE 23. (Counties) Cambria, Somerset.
ZONE 24. (County) Fayette.
ZONE 25. (County) Westmoreland.
ZONE 26. (Counties) Jefferson, Indiana.
ZONE 27. (Counties) Warren, Forest.
ZONE 28. (Counties) Venango, Clarion.
ZONE 29. (Counties) Butler, Armstrong.
ZONE 30. (County) Allegheny.
ZONE 31. (Counties) Washington, Greene.
ZONE 32. (County) Beaver.
ZONE 33. (Counties) Mercer, Lawrence.
ZONE 34. (County) Crawford.
ZONE 35 (County) Erie.

State Code Compliance Committee

Jas. H. Lutz, Jr. (Chairman) (M), 140 Paxton Street, Harrisburg, Pa.
Robert H. Pflug-Felder (M), 788 North 26th Street, Philadelphia, Pa.
Walter C. Williams (M), 24 North Main Street, Wilkes-Barre, Pa.
F. J. Hanley (M), 5938 Broad Street, Pittsburgh, Pa.
R. Allison Miller (M), 524 Penn Street, Huntingdon, Pa.
George Winston (M), 2027 State Street, Erie, Pa.
Chas. Noble (N. M.), Lewistown, Pa.
George B. Grey (N. M.), 328 S. Juniper Street, Philadelphia, Pa.
C. L. Brednick (N. M.), 527 First Avenue, Pittsburgh, Pa.

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ZONE 1

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Jas. H. Lutz

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Howard Smith (M), 42 Armat Street, Philadelphia, Pa.
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Albert R. Haldeman (N. M.), Doylestown, Pa.

ZONE 3

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Joseph Scattene (M), 319 Adams Street, Bethlehem, Pa.
Walter Mann (N. M.), Easton, Pa.

ZONE 5

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Robert G. Johnston (M), 111 S. Blakley Street, Dunmore, Pa.
John Jones (N. M.), 1504 Olive Street, Scranton, Pa.

ZONE 6

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Carl J. Forve (M), 114 N. Main Street, Wilkes-Barre, Pa.
Nat W. Brown (N. M.), Tunkhannock, Pa.

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Charles G. Reedy (M), 43 Woodrow Avenue, Sinking Springs, Pa.
Mandon Seltzinger (N. M.), 336 N. 6th Street, Reading, Pa.

ZONE 12

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Edwin L. Fisher (M), 2043 N. Second Street, Harrisburg, Pa.
Wm. K. Bumbaugh (N. M.), 1412 Market Street, Harrisburg, Pa.

ZONE 18

W. H. Long (M), Huntingdon, Pa.
B. R. Reeder (M), 7 Division Street, South, Mount Union, Pa.
C. C. Gearhart (N. M.), South Huntingdon, Pa.

ZONE 20

F. C. Patterson (M), 76 Mechanics Street, Bradford, Pa.
W. H. McQuilken (M), 17 Chestnut Street, Bradford, Pa.
S. M. Feight (N. M.), Harrison City Road, Jeanette, Pa.

ZONE 24

Sol. B. Litman (M), Uniontown, Pa.
Earl Van Natta (M), Connellsville, Pa.
B. L. Titus (N. M.), Point Marion, Pa.

ZONE 25

Z. E. Forrester (M), 461 Motheral Avenue, Monessen, Pa.
Geo. T. Etheridge (M), 407 Fayette Street, Belle Vernon, Pa.
Albert Jones (N. M.), East Washington Street, Bradford, Pa.

ZONE 28

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Geo. W. Osman (M), 12 Spring Street, Oil City, Pa.
L. A. Bacon (N. M.), 1540 Elk Street, Franklin, Pa.

ZONE 30

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W. A. Fritsch (M), 518 Fourth Avenue, Pittsburgh, Pa.
Herman Rollier (N. M.), 5501 Walnut Street, Pittsburgh, Pa.

ZONE 34

C. L. Thurston (M), Race Street, Meadville, Pa.
William A. Schnauber (M), 677 State Street, Meadville, Pa.
George Bausman (N. M.), 164 Mead Avenue, Meadville, Pa.

RHODE ISLAND

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ZONE 2. Providence District including cities of Providence, Pawtucket, Central Falls, Cranston, and townships of East Providence, North Providence, Johnston, Scituate and Foster.

ZONE 3. East Greenwich District including city of Warwick and townships of West Warwick, East Greenwich, West Greenwich, Coventry, North Kingstown, Exeter.

ZONE 4. Wakefield District including townships of South Kingstown and Narragansett.

ZONE 5. Westerly District including townships of Westerly, Charlestown, Hopkinton, Richmond.

ZONE 6. Warren District including townships of Barrington, Warren, Bristol and Prudence Island.

ZONE 7. Newport District including city of Newport and townships of Middletown, Portsmouth, Jamestown, Tiverton, Little Compton, New Shoreham (Block Island).

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George E. Reinsant (M), 599 Main Street, Pawtucket, R. I.
George F. Frazier (M), Peace Dale, R. I.
Chester F. Lees (M), 15 Peck Street, Providence, R. I.
Robert W. Hay (M), 209 Smith Street, Providence, R. I.
Charles F. Murphy (M), 165 Spring Street, Newport, R. I.

Maurice Burnside (N. M.), North Scituate, R. I.

Daniel Graham (N. M.), 146 High Street, Pawtucket, R. I.

Daniel J. Donovan (N. M.), 349 Thames Street, Newport, R. I.

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George G. Masse (M), 96 Earl Street, Woonsocket, R. I.

James L. Bell (N. M.), c/o J. H. Smith Company, Pascoag, R. I.

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E. S. Woodmancy, Jr. (M), 205 South Main Street, Providence, R. I.

J. M. Drysdale (N. M.), 2212 Broad Street, Cranston, R. I.

ZONE 3

Robert Graham (M), 1098 Main Street, West Warwick, R. I.

C. Edward Johnson (M), 342 Main Street, East Greenwich, R. I.

C. Edward Anderson (N. M.), 312 Main Street, East Greenwich, R. I.

ZONE 4

G. F. Frazier (M), Peace Dale, R. I.

J. B. McCue (M), Narragansett, R. I.

Walter Gavitt (N. M.), Wakefield, R. I.

ZONE 5

Robert Drysdale (M), 54 Main Street, Westerly, R. I.

Fred W. Harvey (M), Westerly, R. I.

Charles Davey (N. M.), 48 Main Street, Westerly, R. I.

ZONE 6

F. C. Seymour (M), Main Street, Warren, R. I.

A. Desmarais (M), 10 Baker Street, Warren, R. I.

J. R. Magee (N. M.), 49 Bradford Street, Bristol, R. I.

ZONE 7

Charles F. Murphy (M), 165 Spring Street, Newport, R. I.

Charles H. McManus (M), 7 Water Street, Newport, R. I.

T. J. Sullivan (N. M.), 651½ Thames Street, Newport, R. I.

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ZONE 2. (Counties) Greene, Cocke, Hawkins, Hancock.

ZONE 3. (Counties) Knox, Roane, Loudon, Blount, Sevier, Jefferson, Hamblen, Grainger, Claiborne, Union, Campbell, Anderson.

ZONE 4. (Counties) Cumberland, Morgan, Scott, Fentress, Pickett, Overton, Clay, Jackson, Putnam.

ZONE 5. (Counties) Hamilton, Marion, Bradley, Polk, Monroe, McMinn, Meigs, Rhea, Bledsoe, Van Buren, White, Sequatchie, Grundy.

ZONE 6. (Counties) Davidson, Benton, Humphreys, Hickman, Williamson, Wilson, Rutherford, Cannon, Warren, DeKalb, Smith, Trousdale, Macon, Sumner, Robertson, Montgomery, Cheatham, Dickson, Houston, Stewart.

ZONE 7. (Counties) Maury, Wayne, Lawrence, Giles, Lincoln, Franklin, Moore, Coffee, Bedford, Marshall, Lewis, Perry, Decatur.

ZONE 8. (Counties) Madison, Hardeman, McNairy, Hardin, Chester, Henderson, Carroll, Crockett, Gibson, Henry.

ZONE 9. (Counties) Shelby, Fayette, Haywood, Tipton, Lauderdale, Dyer, Obion, Lake, Weakley.

State Code Compliance Committee

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H. W. Smith (M), 112 Highland Avenue, Jackson, Tenn.

E. J. White (M), 414 Union Avenue, Knoxville, Tenn.

John Cuneo (M), 1446 Central Avenue, Chattanooga, Tenn.

H. A. Abernathy (M), 115 Spring Street, Johnson City.

W. H. Grewar (M), 406 Commerce Street, Nashville, Tenn.

Fred Hays, Jr. (NM), Bristol, Tenn.

J. W. Stovall (NM), c/o General Delivery, Bristol, Tenn.

P. J. Nolan (NM), 46 Bridge Avenue, Nashville, Tenn.

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D. W. Black (M), Kingsport, Tenn.

W. P. Davis (NM), c/o General Delivery, Johnson City, Tenn.

ZONE 2

R. L. Craven (M) c/o General Delivery, Greenville, Tenn.

L. T. Smyra (M), c/o General Delivery, Erwin, Tenn.

V. E. Ricker (NM), Greenville, Tenn.

ZONE 3

E. A. Haws (M), 204 W. Cumberland Avenue, Knoxville, Tenn.

P. J. Curran (M), 709 West 5th Avenue, Knoxville, Tenn.

H. L. Hamilton (NM), 958 North Broadway, Knoxville, Tenn.

ZONE 4

W. P. Morris (M), Cookville, Tenn.

B. H. West (M), Crossville, Tenn.

John McCleun (NM), Cookville, Tenn.

ZONE 5

W. R. Jones (M), 2606 East Main Street, Chattanooga, Tenn.

Leo Strahle (M), 511 Cherry Street, Chattanooga, Tenn.

Rueben Harris (NM), 2204 McCallie Avenue, Chattanooga, Tenn.

ZONE 6

W. A. Roche (M), 903 Church Street, Nashville, Tenn.

E. I. Tuck (M), 112 South 5th Avenue, Nashville, Tenn.

H. L. Hassell (NM), 516 Broad Street, Nashville, Tenn.

ZONE 7

J. C. Haywood (M), c/o General Delivery, Columbia, Tenn.

F. G. Stowers (M), c/o General Delivery, Shelbyville, Tenn.

John Schokley (NM), c/o General Delivery, Mt. Pleasant, Tenn.

ZONE 8

O. C. Fulghum (M), 203 So. Fairground Street, Jackson, Tenn.

E. P. Taylor (M), 306 East Main Street, Jackson, Tenn.

Herman Little (NM), Greenwood Avenue, Jackson, Tenn.

ZONE 9

Frank Rhodes (M), 560 Madison Avenue, Memphis, Tenn.

Ed. McGowan (M), 542 Vance Avenue, Memphis, Tenn.

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Fig. 89

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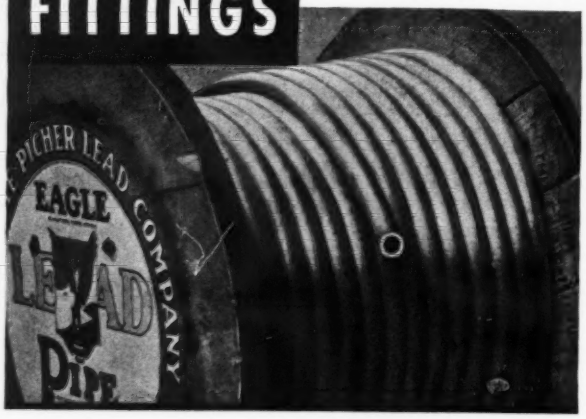

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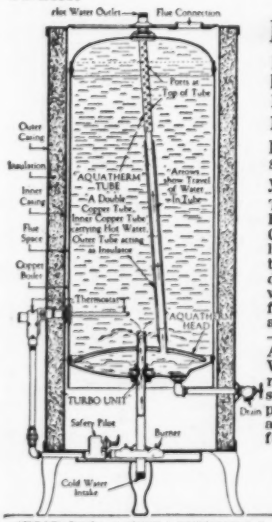
DAHLQUIST COPPER BOILERS fitted with the TURBO and AQUATHERM are as far advanced over other hot water boilers as the new stream line trains are over the old wood burners.



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WE MAKE ALL TYPES OF COPPER BOILERS

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What's Next in N. A. M. P. Program

By JOHN J. CALNAN, President

In outlining the program for the N. A. M. P. during my administration, I have set up as objectives the securing of proper sanitary laws and regulations, and the enforcement thereof; the scientific research needed to establish the validity of our claims that good plumbing is conducive to good health and that bad plumbing is conducive to bad health. Now, I propose to discuss the third objective—stabilizing the distribution system in the interest of the master plumbers.

Next month I will more fully discuss the distribution systems now used in our industry, and will attempt to analyze the underlying causes for the breakdown of proper distribution practices. I propose to set forth a remedial program calculated to stabilize the distribution practices and demonstrate that the system we believe in viz: Manufacturer-to-Wholesaler-to-Master Plumber-to-Public is economically sound.

It must be obvious to anyone in the ranks of the master plumbers that we master plumbers are in part responsible for the breakdown in the distribution system. We have been partially responsible because we, knowingly or unknowingly, have failed to support those sources of supply which have demonstrated their belief in the system of most benefit to us. We have been partially responsible because we have permitted immediate profit to outweigh ultimate benefit by purchasing materials from those sources of supply which did not believe in the system of distribution of most benefit to us. We have been partially responsible because we have lent our skill and knowledge to the installation of products manufactured and sold by the very people who have sought to break down the accepted distribution system.

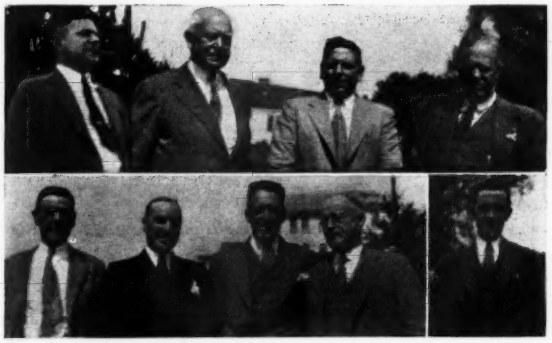
TIME FOR ACTION

The correctives for this situation are in our own hands. We only have to do one thing to bring about a fundamental change. All we need to do is to purchase from those who believe as we do. You will note the use of the word "believe." In order to qualify as a believer in the accepted method of distribution, a source of supply must *act* on his convictions and not merely talk about them. Your part in the distribution stabilization program is to help those who help us—not merely by talking; but by acting.

My part in the distribution stabilization program is, through negotiation and otherwise, to bring about some fundamental changes in our own methods and in those of our sources of supply.

Let me discuss these changes briefly. I propose to convince our sources of supply that, instead of advertising merely the merits of their products, they advertise the merits of their product *in ultimate use* emphasizing that their product can only function at its highest efficiency *when it is properly installed by a licensed master plumber.* Further, that their supporting sales promotion literature emphasize the licensed master plumber's service as prerequisite to the proper functioning of their product. It appears to me that we have had just about enough advertising which extols the product and says nothing about its installation.

The discount and pricing systems now in use are a detriment, rather than a help, to us. On every hand, we see the mail order houses and D. T. U. houses selling products to the ultimate consumer at prices lower than we can buy



At the Outing of the Manhattan Branch.—Top row, left to right: Henry H. Berg, general chairman of outing committees; Jere L. Murphy, Manhattan; Jacob Stockinger, Jr., Queens; Jacob Jarcho, Jr., Manhattan. Bottom row, left to right: John D. Cooley, Manhattan; Jos. C. Kelly and Jos. T. Howley, both of Brooklyn Union Gas Co.; John F. Rogers, Queens, and W. A. Tarrant of Worthington-Gammon Meter Co.

them. Not only does present practice prevent our development of normal sales volume, but it creates the impression that the master plumber seeks to gouge the public. The discount and pricing system problem appears to me to be the basis of most, if not all, of our selling problems. I propose to effect corrective measures, through negotiation, with cooperatively inclined sources of supply to the end that the master plumber will be on a selling parity with our competition outside our own ranks.

Manhattan Master Plumbers Hold Enjoyable Outing

The Manhattan Branch of the Greater New York Master Plumbers' Association held its annual outing at Karatsonyi's, Glenwood Landing, Long Island, N. Y., on Wednesday, September 5, under the most favorable conditions, the weather being all that could be desired, and with a large attendance of master plumbers, representatives of manufacturers, wholesalers, gas and meter companies, and friends.

The big feature of the day was the base ball game. Although it was an exceedingly difficult task to decide on the official score, the salesmen conceded that the master plumbers won the game. The line-up of the teams was as follows:

Master Plumbers		Salesmen
Wm. Childs	Pitcher	Al Jaeckel
Lewis Miller	Catcher	Joe Funk
J. J. McLaughlin	1st Base	W. F. Dailey
Joseph Markgraf	2nd Base	Wm. Martin
Ed. Meredith	3rd Base	H. Hahn

At the Outing of the Manhattan Branch.—Sitting in front, left to right: Al Kent and Al Lang, both of Bomar Plumbing Supply Company. Rear row, left to right: J. A. Urell of E. Smolka Plumbing Supply Co.; M. J. Cregan, A. J. Carolan and J. A. Bachman, master plumbers, and A. E. Jennings of Wm. H. Page Boiler Co.

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Homes, Business Blocks, Apartment Bldgs. (every building with water) buy SNAP-IN's to stop faucet leaks, and cut water and fuel bills. Sell SNAP-IN's with, or without, installation. You make profit either way, and new volume of sales. Window Posters, Folders, Counter Displays, etc., to help you meet this demand.

Makes Faucets Better Than New

SNAP-IN WASHER *replaces* old bibb washer; new "swivel" action eliminates "grinding" of washer against seat. SNAP - IN SEAT enters old seat hole—gives new, permanent seat. SNAP - IN's make faucets turn easier, last longer, and better than new. Bought on sight.

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with a Complete Line of LOW PRICED QUALITY BUILT Water Systems . . .

The Federal Farm Housing Survey which recently checked the needs and the improvements most desired by thousands of farmers revealed one very positive fact . . . more farmers want water systems than any other one improvement. Water systems lead by a wide margin in a field of 21 suggested improvements. *There's your market* . . . made to order.

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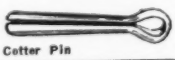
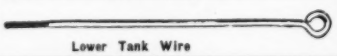


Cotter Pin

Closet Screw



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THE NAME "ACME" IS BRANDED ON EVERY WASHER

K. M. Rocher	Short Stop	Bill Jones
David Brown	Left Field	J. Durante
John Sharp	Center Field	A. R. Hansen
Louis Kast	Right Field	D. McGonegal

The umpire was Dick Schwarz and as he is of a very husky build, he escaped any serious argument in regard to the correctness of his decisions.

The prizewinners of the races were as follows:

60-yard Dash: 1, Al Jaeckel; 2, C. Middleton; 3, Art Hansen.

100-yard Dash: 1, Al Jaeckel; 2, C. Middleton; 3, K. M. Rocker.

Fat Men's Race: 1, W. F. Dailey; 2, J. Markgraf; 3, Jake Stockinger, Jr.

Sack Race: 1, Bill Jones; 2, Joe Funk; 3, J. Durante.

Three-Legged Race: 1, Bill Jones and J. Durante; 2, K. M. Rocker and Joe Funk; 3, E. Meredith and J. Gruenwald.

The final event was the Badger Race, which was won by J. Durante.

The judges in the various athletic events were: A. E. Jennings, Richard Anderson and Jake Stockinger, Jr.

Henry H. Berg was chairman of the Outing Committee, and his associates were Nathan Weinstein, Albert A. Duguid and Louis A. Kast. This committee was assisted by Miss M. Taylor and Miss M. Herman.

Most picnickers came in their own cars, but a large party, which had met at the Association's headquarters at 136 East 30th Street, New York City, chartered a large bus for the trip to the picnic ground.

Obituaries

David S. Bain

David S. Bain, an honorary member of the Plumbing Contractors' Association of Chicago, passed away at his home in Chicago on Thursday, September 13. Mr. Bain, who was in his ninety-second year, was the oldest living Chicago plumber. He was born in Scotland February 14, 1842, and came to Chicago when he was seventeen years old. He was engaged in the plumbing business on the west side from 1866 until 1893, installing the plumbing in many of Chicago's largest buildings of that period. Upon retiring from the plumbing business, he engaged in real estate, in which he was active until a few years ago. He is survived by one daughter and two sons.

John Leese

John Leese, member of the plumbing firm of Warden & Leese in Cleveland, Ohio, died Wednesday morning, September 12, while on his way to his office. Mr. Leese was the surviving member of the firm of Warden & Leese, which for many years took a leading part in the plumbing business in Cleveland. Mr. Leese served as secretary-treasurer of Ohio Master Plumbers Association 1902-1903, and he was a member of the Cleveland Plumbing Contractors' Association. A daughter, a sister and two brothers survive.

James P. Dwyer

James P. Dwyer, for almost a half century identified with the heating industry in New England, died recently at his home in Roslindale, Mass., in his 74th year. Mr. Dwyer, who conducted the heating business known as the J. P. Dwyer Co., was for years a member of the Heating, Piping and Air Conditioning Contractors Boston Association, and belonged to various fraternal organizations, including the Knights of Columbus. He is survived by his widow, five sons and four daughters. Three of the sons, James Jr., Joseph F., and Carroll are now identified with the industry, Joseph F. being at the present time president of the Boston heating association.

Women's Activities

By DOROTHY EDWARDS

The Educational and Memorial Loan Fund for Daughters of Members of the National Association of Master Plumbers has granted six loans amounting to $775.00. Six states are represented, namely: Ohio, North Carolina, Florida, Wisconsin, Massachusetts and Oregon. This fund was established in 1932, and the first two loans were made on September 1, 1933. The National Women's Auxiliary believes it is an honor to assist these worthy daughters of worthy master plumbers to help themselves.

Mrs. Edwin D. Hornbrook,
Treasurer

Queens Auxiliary Plans Fall Barn Dance

The Women's Auxiliary to the Master Plumbers' Association of Queens held its regular monthly meeting at the K. of C. Building in Jamaica, N. Y., September 5. President Martha Billharz presided at the meeting. Preliminary arrangements were made for a fall barn dance, which will probably be held October 27 at the Masonic Temple, Queens Boulevard and Gown Street, Forest Hills, L. I.

New Jersey Auxilary Will Meet October 10

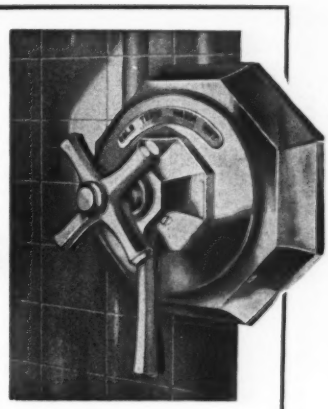
The Women's Auxiliary to the New Jersey State Association of Master Plumbers will hold its next regular meeting at the Elks' Club in Union City, N. J., on Wednesday, October 10.

Kansas City Women's Auxiliary Opens Season

The Women's Auxiliary to the Kansas City, Mo., Association of Master Plumbers held its first meeting of the season on Thursday, September 9, at the home of Mrs. Edwin D. Hornbrook. One o'clock luncheon was served. Garden flowers decorated the table and living room. A telegram of greetings was received from Mrs. Robert Liss of Chicago, president of the National Woman's Auxiliary. The work of the Needle Work Guild will be continued as in former years. The Committee of Sanitation reported progress. The Junior Auxiliary movement was endorsed.

From left to right: Mrs. F. R. Fanning of Winter Park, Fla.; Mrs. Edwin D. Hornbrook, Kansas City, Mo.; John L. E. Firmin, Los Gatos, Calif., and Mrs. Lee Phillips, Lakeland, Fla.

FITS EVERY MODERNIZING PLAN



RIGHT now aggressive plumbing contractors are capitalizing on the big new business opportunities being created by the Federal Housing Act. ● Many homeowners in your immediate locality who have put off modernizing plans, for the lack of necessary funds, are now enabled to proceed with these plans. ● Go after this business NOW . . . but be cautious in your recommendations. ● Remember the LEONARD Valve fits every modernizing plan . . . will assure your customer unlimited satisfaction . . . and will mean extra, gratifying profits for you. ● Stock up NOW.

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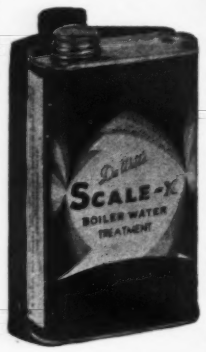

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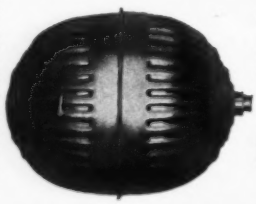
Leader Tank Balls seat perfectly every time.

Reichert Floats are made of heavy gauge sheet copper, two sections seamed in securely. The reinforced spud makes them the strongest on the market. They stand up even when service is particularly severe, such as in factories, schools and public buildings.



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North Hudson and Nassau Auxiliaries Enjoy Annual Get-Together

Every year some day in September, members of the North Hudson, N. J., and Nassau County, N. Y., Women's Auxiliaries hold a get-together party, and this year's affair was held on Long Island.

It started with a shore dinner at Narragansett Inn, Lindenhurst, L. I., adjourned to Jones Beach, L. I., where the party enjoyed a two-hour sail on the yacht of Joseph Riedman, a Nassau county plumbing contractor, and then finished with a dinner at Schaeffer's Restaurant in Franklin Square, L. I.

Those in attendance were: Mrs. Clyde Cole, president; Mrs. Henry Bunker, secretary; Mrs. N. Triani, treasurer, and Mrs. Charles Zimmerman, director of the Women's National Auxiliary, all of the North Hudson, N. J., Auxiliary; Mrs. Wm. Metcalf, president of the New York State Auxiliary, and the following from Nassau County Auxiliary: Mrs. Joseph Riedman, president; Mrs. Jas. Metcalf, treasurer; Mrs. Vincent De Gregoria and Miss Josephine De Gregoria.

Traveling Gift Box Increases Interest in St. Petersburg Auxiliary

The Women's Auxiliary to the Master Plumbers' Association of St. Petersburg, Fla., has recently adopted the use of a traveling gift box which is providing much entertainment for members of the auxiliary as well as adding interest to the activities of the organization. "The gifts are carefully wrapped and recipients as a rule get quite a thrill when they open the packages," writes Mrs. Lee R. Sheffield.

Death of Mrs. Roland A. Taylor of St. Petersburg, Fla.

Mrs. Frances Margaret Taylor, past president of the Women's Auxiliary of St. Petersburg, Fla., died recently at her home in that city, after having been in poor health for several years. Mrs. Taylor was the wife of Roland A. Taylor, a master plumber, and she is survived by her husband, two sons and five daughters. The Women's Auxiliary of St. Petersburg passed resolutions expressing its heartfelt sympathy to members of her family in their great loss.

Women's National Sanitation Committee to Push Drive for Remodeling

The following communication from Mrs. J. Corcoran, chairman of the Sanitation Committee of the Women's Auxiliary, is self-explanatory:

"The National Sanitation Committee is being organized in every State in which there is an Auxiliary, and we have begun an active campaign to promote better sanitary conditions, not only in private homes, but also in public places, stores, theaters, restaurants, departments stores, tea rooms, gasoline stations, and in fact every place where good plumbing and better sanitary conditions would be a convenience to the patron, and in consequence bring increased patronage to the owner.

"As it is the expressed wish of our President, Mr. Franklin D. Roosevelt, that we should, wherever possible, renovate and improve our homes and as loans have been made available for that purpose, we feel that our efforts should meet with a certain amount of success."

Anna M. Corcoran (Mrs. J.),
Chairman, Sanitation Committee,
Women's Auxiliary, N. A. M. P.

BEER *and* BAR EQUIPMENT

How to Determine Kitchen Needs for Cafeteria

By H. A. Long

KITCHENS are designed for various capacities and uses such as for hotel service, for ordinary restaurant service and for light lunch and cafeteria service. The rangement shown in Fig. 1 is that of a kitchen designed for serving 1,000 persons at a time in a cafeteria where self service from the counter is used. The various pieces of equipment have been designated by number on the drawing and the different numbers represent the items listed in Table I.

SERVICES NECESSARY FOR EQUIPMENT

Between the Kitchen and the Cafeteria a hollow wall is dropped down to slightly below head line directly over the counter, thus leaving an opening between the top of the counter and the bottom of this hollow wall for serving patrons. The purpose of this is to keep heat from the kitchen out of the cafeteria and to assist in the ventilation as will be explained later.

The occupancy of the building is about 8,000 persons and by allowing 30 minutes as the average time spent by each user in the cafeteria it will be seen that about 4,000 persons could be served in a two hour lunch period while the balance it is expected will either go outside by preference or will use the cafeteria at times outside of the two hours of peak load.

In order to operate this equipment certain services must be provided consisting of hot and cold water, waste, gas, drains, steam and return, the sizes required being indicated in the outline contained in Table II which will be found on the following page.

The waste and vent piping was laid out on the circuit

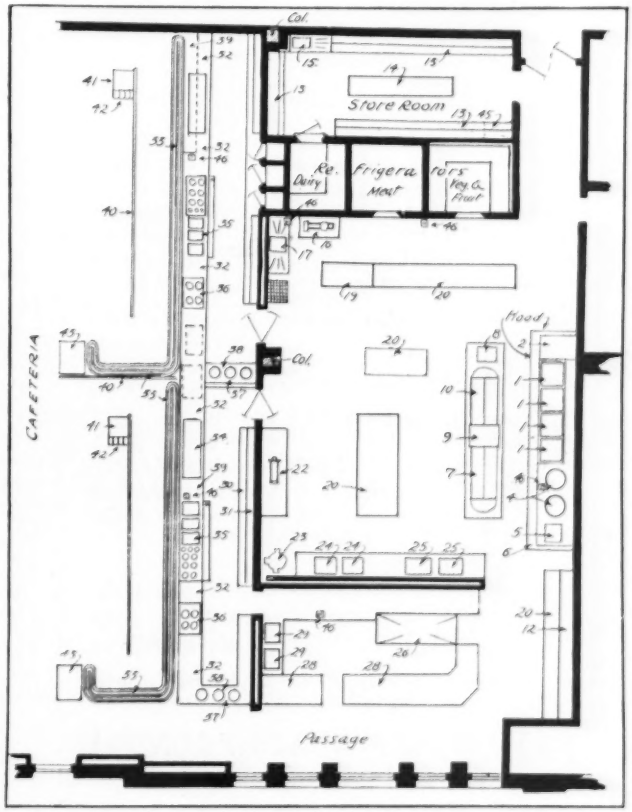

Fig. 1—The general arrangement of the cafeteria kitchen is indicated in the plan drawing at the right. Table 1, identifies the various items of equipment numbered.

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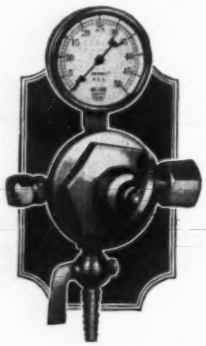

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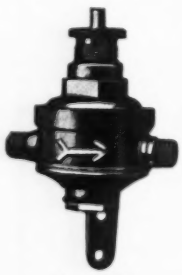
GAS REGULATORS

Our economy regulator. Furnished with either 30 lb. or 50 lb. (specify) 2½" diameter black enameled gauge with polished brass bezel. Also designed for use on low pressure air lines and compressors. Far superior to other low priced regulators.

AIR PRESSURE REGULATOR

No. 2362

No. 2362—An Air Pressure Regulator complete with arm and gauge, which reduces the inlet pressure to the desired outlet pressure and registers the outlet pressure only.



No. 2360

To increase pressure regulator screw is turned to the right. To decrease, turn to the left. Arrows indicate air pressure direction.

No. 2360—Regulator is 5½" high, with wall bracket. Both inlet and outlet are threaded for ⅛" pipe.

No. 2361—Regulator is of the same construction as above with inlet and outlet threaded for ¼" pipe.

Write for Our New Beer Dispensing Equipment Catalogue just off the Press.

GRAND HAVEN BRASS FOUNDRY
Grand Haven, Mich.

vent design which eliminated much trouble from back vents rising up at every trap as is necessary with the back vent system. A layout of the waste and vent piping is given in Fig. 2 and it will be noted that in general

Table I.

No.	Equipment	No.	Equipment
1.	Four-section Gas Range	24.	Vegetable Sink
2.	Broiler	25.	Pot Sink
3.	Plate Shelf	26.	Dish Warmer
4.	Kettles	27.	Clean Dish Table
5.	Steamer	28.	Soiled Dish Table
6.	Hood over Range	29.	Glass Sink
7.	Cook's Table	30.	Back Counter
8.	Sink	31.	Shelving
9.	Bain Marie	32.	Serving Counter
10.	Sauce Pan Rack	33.	Tray Rails
11.	Serving Shelf	34.	Salad Pan
12.	Kitchen shelves—3 high	35.	Steam Table and Warmer
13.	Shelving and Counter—4 high	36.	Ice Cream Cabinets
14.	Table	37.	Urn Stands and Warm
15.	Sink	38.	Urns
16.	Meat Chopper	39.	Display Shelves—2 high
17.	Sink	40.	Traffic Rail
18.	Butcher's Block	41.	Tray Table
19.	Butcher's Bench	42.	Silver Boxes
20.	Table	43.	Cashier's Desk
21.	Mixer	44.	Refrigerator
22.	Bread Slicer	45.	Compressor
23.	Vegetable Parer	46.	Floor Drain

the 1-in. drains from urn stands and other equipment are collected above the floor and are allowed to spill over the nearest floor drain. Grease traps are provided on the wastes for the pot sinks and the dish washer. All of the waste and vent piping outside of the small

Table II.

Item	No.	C.W.	H.W.	Waste	Gas	St.	Ret.
Range	1	....	....	....	2"	....	....
Broiler	2	....	....	....	1½"	....	....
Kettles	4	....	....	....	....	¾"	¾"
Steamer	5	....	....	....	....	¾"	....
Sink	8	¾"	¾"	2"	....	....	....
Bain Marie	9	....	½"	1"	....	¾"	¾"
Sink	15	¾"	¾"	2"	....	....	....
Sink	17	¾"	¾"	2"	....	....	....
Veg. Parer	23	½"	....	1"	....	....	....
Veg. Sink	24	*¾"	*¾"	*2"	....	....	....
Pot Sink	25	*¾"	*¾"	*2"	....	....	....
Dish Washer	26	½"	¾"	2"	....	¾"	....
Glass Sink	29	¾"	¾"	2"	....	....	....
Back Counter	30	....	....	....	1"	....	....
Salad Pan	34	½"	....	1"	....	....	....
St. Table	35	....	½"	1"	....	¾"	¾"
Ice Cream	36	½"	....	1"	....	....	....
Urns Stand	37	....	....	1"	....	¾"	¾"
Urns	38	¾"	....	....	....	¾"	¾"
Comp.	45	½"	....	....	....	....	....
Floor Drns.	46	....	....	3"	....	....	....

*Required for each compartment.

1-in. drains just mentioned is run on the ceiling below and united into a single 4-in. waste line and a 3-in. vent line which are run over to the vertical stacks shown.

Gas is supplied at the ordinary city pressure at points shown on Fig. 2 and is piped from these points to the

fixture connection. As this kitchen is what is termed a gas kitchen—that is using gas for the major portion of the equipment requiring heat—there are not very many steam and return connections to worry about, steam being used only on the kettles, steamer, bain marie, dish washer, steam tables, and urns. Steam at 50 lb. pressure was supplied to these fixtures and the pipe was sized on an area basis assuming that ⅔ of all the fixtures would be in use at the same time.

The same kitchen was also laid out with the idea of using electricity for cooking and this was found to require the following changes:

1. Gas Range changed to electric, requiring an electric current supply and the omission of the gas outlets.
2. Broiler, same as range above.
4. Kettles, changed to electric, omitting the steam and return connections.
9. Bain Marie, changed to electric, omitting steam and return connections.
30. Back Counter, changed from gas outlet to electric outlet.
35. Steam Table, changed to electric, omitting steam and return connections.
37. Urn Stands and Warmer, changed to electric, omitting steam and return connections.
38. Urns, same as urn stands above.

This leaves only the steamer (5) and the dish washer (26) as requiring any steam supply and neither of these has a return.

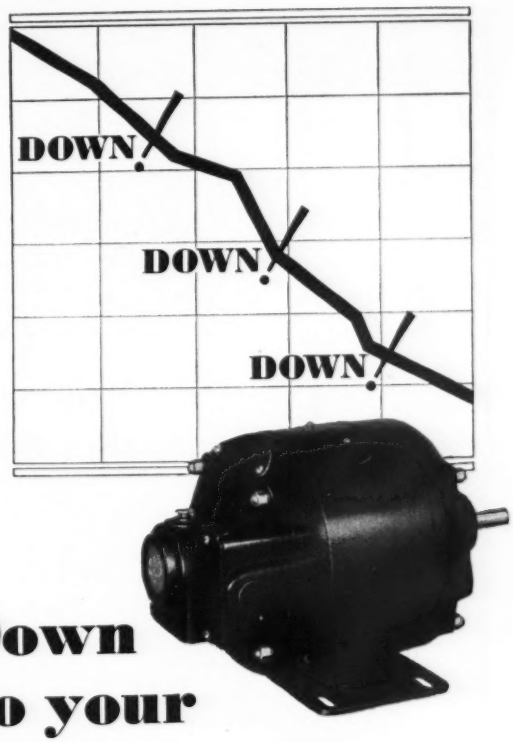
VENTILATION OF KITCHEN

The kitchen was ventilated entirely by exhaust and about 15 air changes per hour are taken out. This air comes in from the cafeteria across the serving counter and is used to prevent smells and odors from the kitchen penetrating the cafeteria. In order to make this air movement more positive and less liable to be upset by room eddies the space above the serving counter is furred down from the general ceiling height so as to terminate about 6 ft. above the floor; with an average counter height of 3 ft., this leaves an opening about 3 ft. high by 70 ft. long, with an area of 210 sq. ft. As the total air removed from the kitchen section is about 8,000 c.f.m., this means an air movement through the open area of 8,000/210 or 380 f.p.m., which probably will be reduced (by some leakage into the kitchen from other spaces) to about 350 f.p.m.

The exhaust outlets are arranged first to remove the air from the hood over the range to protect the kitchen from overheating and second from the area directly over the serving counter to prevent any kitchen air swirling back into the cafeteria. The store room had to be treated separately as it is entirely walled off from the kitchen; the dish washer also was provided with local air removal in an effort to prevent the odor from dirty dishes being disseminated as much as possible.

The duct running along over the serving counter is concealed behind the drop wall and the grilles in the bottom come down nearly to the bottom of the drop wall.

It is presumed that the reader is familiar with the manner in which such a cafeteria is operated as this has an important bearing on the kitchen arrangement; such



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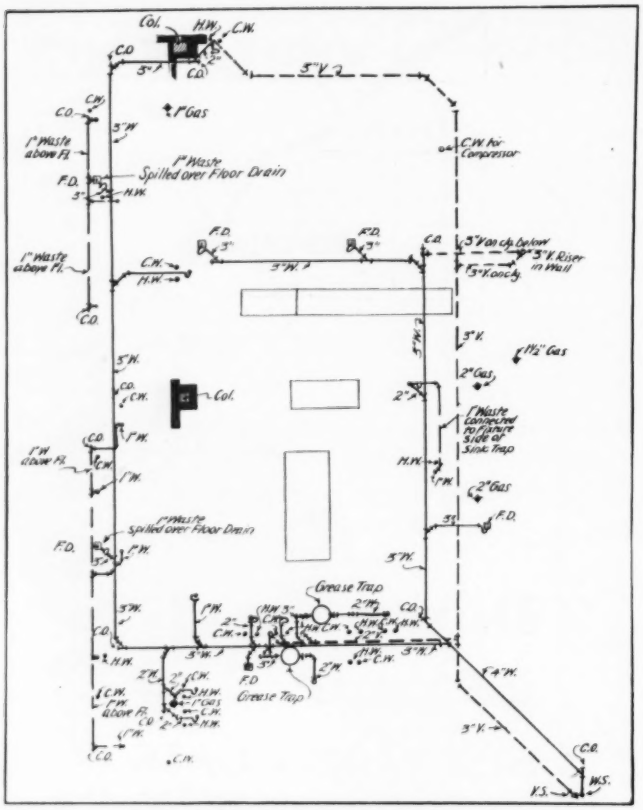

Fig. 2—A layout of the waste and vent piping is shown in this illustration. Gas is supplied at the ordinary city pressure at the several points indicated.

arrangements are either run on the "ticket plan" or the "inspection plan." In either case the customer enters, proceeds to the tray table (41), picks up a tray and the necessary cutlery from the silver boxes (42) and usually obtains a paper napkin at the same source. He then proceeds along the aisle between the brass rail (40) and the counter (32), selecting what he desires as he proceeds and putting the food he selects on his tray, which, as it becomes heavy, is rested on the tray rails (33). When he reaches the end of the aisle he turns out to the cashier's desk (43) and pays for what he has taken and proceeds into the cafeteria and sits down at a table to eat his lunch.

On completion, he walks away, leaving the dishes and tray to be collected by the employees and removed to the kitchen for washing. In the "ticket" system, an employee usually hands the customer a ticket at the time of picking up the tray to go to the counter and on this ticket are printed amounts usually running in 5 cent increments up to as high as a dollar or a dollar and a half. As each item is handed over the counter the attendant punches the ticket in accordance with the price so that the last punch always shows the total purchased or the amount to be

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paid to the cashier. On arrival at the cashier's desk the amount shown by the highest punch on the ticket is paid.

In the "inspection" system, no ticket is used but the cashier, or an estimator, looks the tray over when arriving at the cashier's desk and tells off the total value of the various items on the tray and this amount is then paid to the cashier.

Hold First Collective Bargaining Meeting

The first hearing on a "proposed collective bargaining agreement" held for the plumbing industry took place at Denver, Colo., on Aug. 23. It was conducted by R. E. Doherty, deputy NRA administrator, who had held similar meetings in the middle west. It was important in determining a plan of procedure for similar meetings which may be called for other states and localities wishing such agreements.

In the notice for this meeting, a number of points of interest to plumbers were brought up. These included hours, holidays, wages, overtime, payments, conditions of employment including safety, contracting, tools, member performing work, complaints, refusal to violate laws, rebates and laws. At such meetings, representation for both employer and employe must be proved.

Calnan—

(Continued from page 66)

devise plans to meet this growing evil. I feel we were in the greatest danger when we did nothing about it but talk and complain, and feel we have good reason to be hopeful now that our leaders are going into action to do something to correct it.

In the words of Dr. Herman N. Bundesen, I believe before we can sell an idea to others, we must first be thoroughly convinced ourselves.

So in conclusion, although the hours we are passing through are dark, I believe we are on the threshold of a brighter day, and am confident that since the leaders who believe in our method of distribution are aroused, it is bound to win, for, once we properly organize and combine the best brains, management, mechanical skill and the manufacturers of superior products of our industry into a solidified fighting, aggressive phalanx, there can be but one outcome.

March on to Victory, and continue to maintain and increase our predominant position in the industry.

Convention Dates

October 22, 1934.—R. M. A.—The annual meeting of the Refrigerating Machinery Association at Stevens Hotel, Chicago.

October 29 to November 2, 1934.—A. G. A.—The annual convention and exposition of the American Gas Association, at the Atlantic City Auditorium, Atlantic City, N. J.

December 3 to 8, 1934.—The Eleventh National Exposition of Power and Mechanical Engineering, at Grand Central Palace, New York City.

January 28 to 31, 1935.—A. S. H. V. E.—The forty-first annual meeting of the American Society of Heating and Ventilating Engineers, at Buffalo, N. Y.

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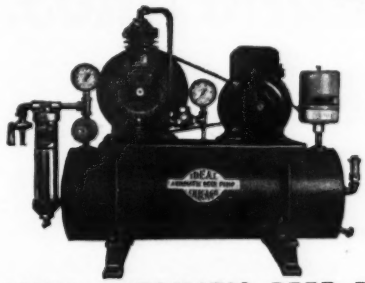
WITH AIR FILTER



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the one about the traveling salesman?

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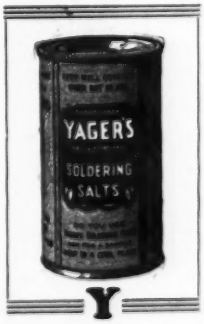

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Detroit, Mich.

Good news for every plumber who solders a sweat fitting! C & L Multi-Flame Torch No. 325 delivers an enormous 10-inch blue blast of great volume and heat intensity. Flame can be easily reduced to small point for light work. Burns in any position. Made by Clayton & Lambert, manufacturers of firepots and torches for nearly 50 years. Write for folder.

MAKERS OF WORLD'S LARGEST SELLING FIREPOTS

DART★UNIONS

TWICE the SERVICE OF THE ORDINARY UNION

Where the ordinary union falls down the DART Union shines. Positive insurance against leaks and corrosion is provided by the two ball-ground, wide-bearing, bronze seats which are swedged into heavy malleable pipe ends. For twice the service of the ordinary union specify DARTS every time.

DART★UNIONS

E. M. DART MFG. CO. *Providence, R. I.*
The Fairbanks Co., Sales Agents
Canadian Factory:
Dart Union Co., Ltd., Toronto, Can.

THE "MODERN" RANGE BOILER

Pat. No. 1853949

30, 40 and 50 Gallons
200, 250 and 300 lb. Test

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

Sold Through Wholesalers Only

HAYES MFG. CO., Paterson, N. J.
Established 1870

Chicago Master Plumbers and Supply Men Meet in September

The Chicago Master Plumbers and Supply Men have been favored with good weather at their various tournaments during the past summer. This was particularly so at the recent tournament held on September 20 at Cog Hill, when fifty members and guests participated in the second last tournament of the year.

The final tournament of the Association, which holds these meetings during the summer months, will be held at the River Forest Golf Club on Thursday, October 11, when the season's various prizes will be distributed.

At the tournament held at Cog Hill, Joe Comer, with a 77-8-69, won the low net in Class A,—6 golf balls. Howard Doyle, with a 78-8-70, won second prize,—4 golf balls. Cy Larson, with a 90-18-72, won third prize in this class,—2 golf balls.

In Class B, Fred Wagner, with a 97-24-73, won low net first prize,—6 golf balls. John Bushnell won second prize with a 97-23-74,—4 golf balls. Wm. Knauss won third prize with a 100-24-76,—2 golf balls.

Charlie Jones and Porter West with an 81 were tied for the Blind Bogey Prize. It was determined on scores between 75 and 85.

The flight winners were as follows: Howard Jacobs, H. P. Reger, J. F. Mahoney, H. Mollison, Harold Burr, Harry Ryan, F. K. Fabbri, E. E. Stevenson, Charles Gazin, E. Levy, Peter M. Munn.

The dinner in the evening was presided over by the chairman of the golf committee, Ed. Mortimer, who introduced several guests. The prizes were announced by William Redieske, and distributed by Secretary Peter M. Munn.

The scorekeeper's record follows:

Player	G.	H.	Net	Player	G.	H.	Net
John Blair	106	27	79	J. F. Mahoney	95	20	75
John Bradley	109	30	79	R. Marshall	106	23	83
P. J. Brown	103	25	78	Geo. Matthews	129	37	92
Harold Burr	84	10	74	H. Mollison	86	12	74
John Bushnell	97	23	74	Ed Mortimer	101	19	82
Joe Carroll	100	15	85	Peter Munn	102	22	80
J. Cecilio	118	35	83	Jack Nelson	119	32	87
Joe Comer	77	8	69	Ralph Reedy	87	9	78
Howard Doyle	78	8	70	H. P. Reger	101	22	79
C. A. Dreier	104	22	82	Fred Rubke	88	18	70
Glen Eaton	122	35	87	Harry Ryan	88	12	76
F. K. Fabbri	94	17	77	Herman Scheel	118	27	91
James Fettes	103	21	82	Robert Sells	90	12	78
Chas. Gazin	105	21	84	P. L. Sieben	103	19	84
E. Groves	93	18	75	Wm. Spillane	90	14	76
John Guldan	93	19	74	E. E. Stevenson	87	13	74
Ed Hawley	98	19	79	Henry Swade	104	23	81
Howard Jacobs	91	19	72	F. J. Wagner	97	24	73
C. Jones	91	17	74	R. J. Weber	110	22	88
Wm. Knauss	100	24	76	Porter West	88	12	76
C. Larson	90	18	72	Harry Yelton	113	23	90
E. Levy	93	20	73				

J. H. MacLean Called by Death

Joseph Hector MacLean, a plumbing and heating contractor in Bridgetown, Nova Scotia, Canada, died recently at his home in that city in his 50th year, following a year's illness. He is survived by his widow, four sons and four daughters.

Death of Harry C. Mapes

Harry C. Mapes, vice-president of the H. C. Mapes Company, plumbing and heating contractors at Lockport, N. Y., died on August 25 in a hospital in Buffalo, N. Y., in his 66th year. Mr. Mapes was born and educated in Lockport and spent all his life in that city. His wife and two daughters survive him.

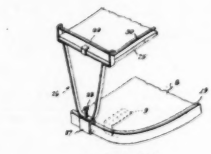
NEW IDEAS FROM PATENT OFFICE

Plumbing Department

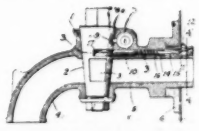
1,936,008. Adjustable Flush Tank Cover. Sidney M. Cowan, Newark, N. J.

1,949,926. Two-Way Locking Faucet. Otis A. Causey, Crows Landing, Calif.

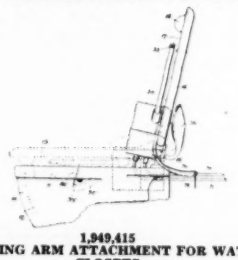
1,949,415. Flushing Arm Attachment for Water Closets. Ferruccio Guidetti, Elmhurst, and Guido M. Sacerdote, Bayside, N. Y., assignors to The Watairway Manufacturing Corporation, Elmhurst, Long Island, N. Y., a corporation of New York.



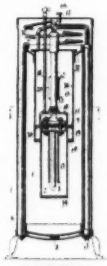
1,936,008
ADJUSTABLE FLUSH TANK COVER



1,949,926
TWO-WAY LOCKING FAUCET



1,949,415
FLUSHING ARM ATTACHMENT FOR WATER CLOSETS



1,950,113
ELECTRIC WATER HEATER

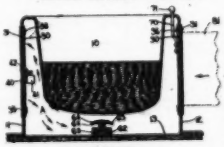
1,950,113. Electrical Water Heater. Matthew W. Kirkwood, Preston, Ontario, Canada.

1,942,905. Bath Spray Device. John Semkow, New York, N. Y.

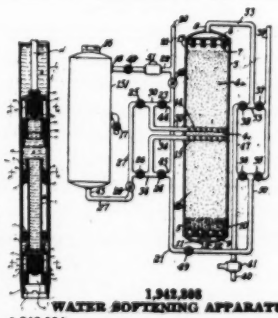
1,941,832. Thermos Bathtub. Carl A. Gottfried, Grand Rapids, Mich.

1,942,808. Water Softening Apparatus. Andrew J. Dotterweich, Pittsburgh, Pa., assignor to Automatic Water Softener Company, Pittsburgh, Pa., a corporation of Delaware.

1,942,905
BATH SPRAY DEVICE



1,941,832
THERMOS BATHTUB



1,942,808
WATER SOFTENING APPARATUS

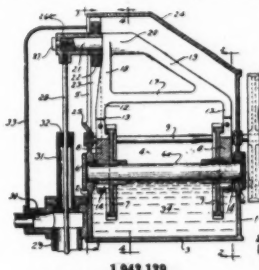
1,943,034
DOUBLE ACTING PUMP CYLINDER

1,943,034. Double Acting Pump Cylinder. Philip A. Myers, Ashland, Ohio, assignor to The F. E. Myers & Bro. Company, Ashland, Ohio, a corporation of Ohio.

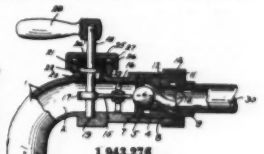
1,943,139. Power Head for a Pump. Philip A. Myers, Ashland, Ohio, assignor to The F. E. Myers and Bro. Company, Ashland, Ohio, a corporation of Ohio.

1,943,276. Faucet. Lewis J. Miller, Syracuse, N. Y., assignor of one-third to George E. Wiley.

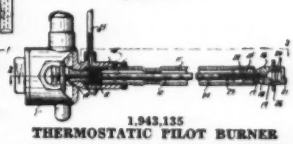
1,943,135. Thermostatic Pilot Burner. Clarence H. Morrow, Cleveland, Ohio, assignor to The Hotstream Heater Company, Cleveland, Ohio, a corporation of Ohio.



1,943,139
POWER HEAD FOR A PUMP



1,943,276
FAUCET



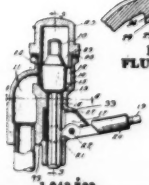
1,943,135
THERMOSTATIC PILOT BURNER

1,942,837. Flush Valve. William F. Schultheiss, Huntington Park, Calif.

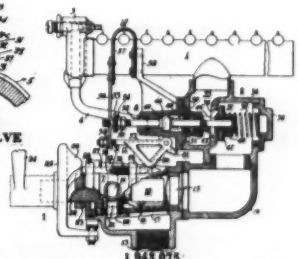
1,943,769. Flushing Tank Valve. James Melio, Chicago, Ill.

1,943,075. Valve Mechanism for Main and Pilot Burners. Ernest J. Horton, Pittsburgh, Pa., assignor to Ruud Manufacturing Company, a corporation of New Jersey.

1,942,837
FLUSH VALVE



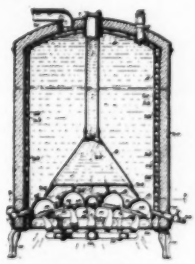
1,943,769
FLUSHING TANK VALVE



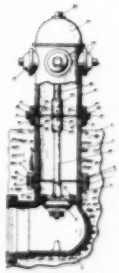
1,943,075
VALVE MECHANISM FOR MAIN AND PILOT BURNERS

1,944,817. Water Heater. William S. Thomas, Mantoursville, Pa.

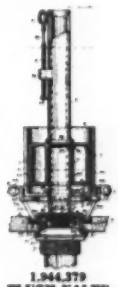
1,944,777. Hydrant. Frederick R. Banks, Elmira, N. Y., assignor to The Kennedy Valve Mfg. Co., Elmira, N. Y.



1,944,817
WATER HEATER



1,944,777
HYDRANT



1,944,379
FLUSH VALVE

Distinguished Atmosphere
IN CINCINNATI

700 ROOMS
700 BATHS
700 SERVIDORS

$2
AND UP

75 MODERN SAMPLE ROOMS WITH BATH OR SHOWER AT $2.50 TO $5 PER DAY

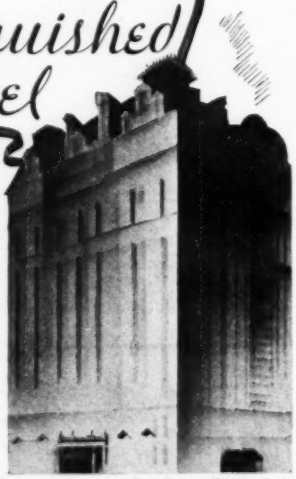
$1.00 PER DAY EXTRA FOR ADDITIONAL OCCUPANT OF ROOM

A minute from everywhere... All bedrooms and suites modernized... Headquarters for the exclusive Town Club and Racquet Club ..A vital part of Cincinnati's polite Social Life... Successor to Cincinnati's famous St. Nicholas Hotel...The city's Quality Hotel

Finest of Fine Foods
Dining Rooms ... Lunch Room ... Cafeteria .....Coffee Shop.....and the Sinton Cocktail Cafe reborn.

HOTEL
SINTON-ST. NICHOLAS
AN ATMOSPHERE OF CHARM AND DISTINCTION
JOHN L. HORGAN... *Managing Director*

A Distinguished Hotel



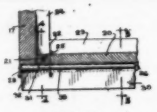
YOUR HOME IN PHILADELPHIA

Here a gracious, unobtrusive hospitality in the best Philadelphia tradition . . . every thought for your comfort . . . rooms smartly modern in decoration and appointments, including Simmons Beds... the skill of Bellevue chefs ... and a convenience of location that will make yours a well remembered visit.

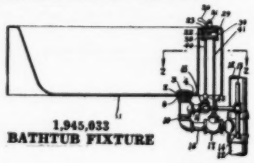
Bellevue Stratford
CLAUDE H. BENNETT, General Manager

1,944,379. Flush Valve. Bert O. Tilden, Trenton, N. J., assignor to B. O. T. Manufacturing Company, Trenton, N. J., a corporation of New Jersey.

1,944,440. Shower Bath Stall Door, Shower Bath Shield, and the Like. Louis H. Lehman, Philadelphia, Pa.



1,944,440
SHOWER BATH STALL DOOR, SHOWER BATH SHIELD, AND THE LIKE



1,945,033
BATHTUB FIXTURE

1,944,850
SANITARY PLUMBING CONNECTION

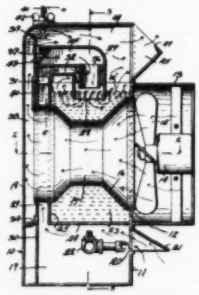
1,945,033. Bathtub Fixture. Michael P. Doyle, Brooklyn, N. Y.

1,944,850. Sanitary Plumbing Connection. James Simpson, Abingdon, Ill., assignor to Abingdon Sanitary Mfg. Co., Abingdon, Ill., a corporation of Illinois.

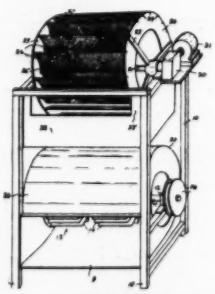
Heating Department

1,941,734. Air Conditioner. Lee J. Black, Beaumont, Texas.

1,942,085. Air Conditioning Device. Charles Edward Carey, Seattle, Wash.



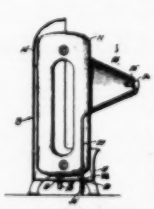
1,941,734
AIR CONDITIONER



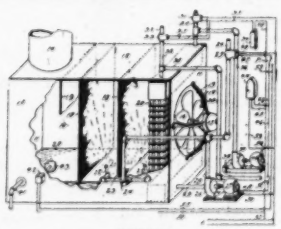
1,942,085
AIR CONDITIONING DEVICE

1,944,411. Air Humidifier. George D. Doherty, Minneapolis, Minn., assignor to Doherty-Brehm Company, Minneapolis, Minn., a corporation of Delaware.

1,944,146. Air Conditioning Apparatus. Hobart B. Howry, Sioux City, Iowa, assignor, by direct and mesne assignments, to National Air Conditioning Company, Sioux City, Iowa, a corporation of Iowa.



1,944,411
AIR HUMIDIFIER



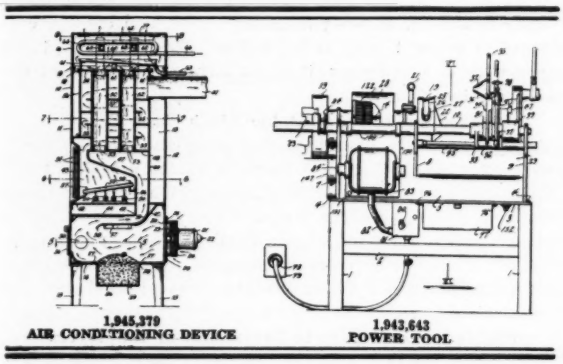
1,944,146
AIR CONDITIONING APPARATUS

1,943,463
AIR VALVE

1,943,462. Air Valve. Frederick H. Tweed, Chicago, Ill.

1,945,379. Air Conditioning Device. Arthur A. Roesch, Belleville, Ill., assignor to Roesch Enamel Range Company, Belleville, Ill., a corporation of Illinois.

1,943,643. Power Tool. William W. Vosper, Toledo, Ohio, assignor to The Toledo Pipe Threading Machine Co., Toledo, Ohio, a corporation of Ohio.

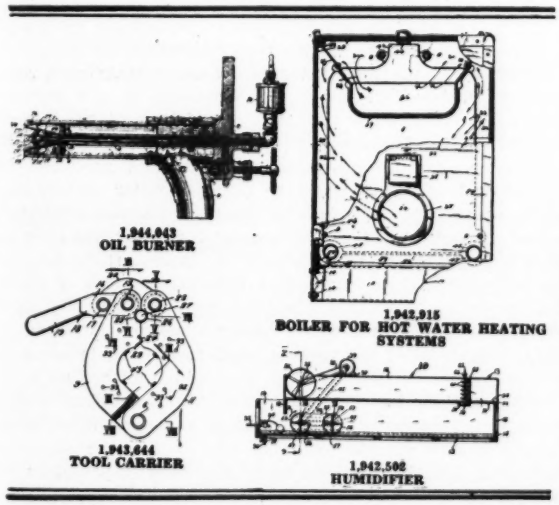


1,945,379
AIR CONDITIONING DEVICE

1,943,643
POWER TOOL

1,944,043. Oil Burner. Reginald W. Titmas, New Orleans, La., assignor to Titmas Company, Inc., New Orleans, La., a corporation of Louisiana.

1,942,915. Boiler for Hot Water Heating Systems. Olof S. Burman, Minneapolis, Minn.



1,944,043
OIL BURNER

1,942,915
BOILER FOR HOT WATER HEATING SYSTEMS

1,943,644
TOOL CARRIER

1,942,502
HUMIDIFIER

1,943,644. Tool Carrier. William W. Vosper, Toledo, Ohio, assignor to The Toledo Pipe Threading Machine Company, Toledo, Ohio, a corporation of Ohio.

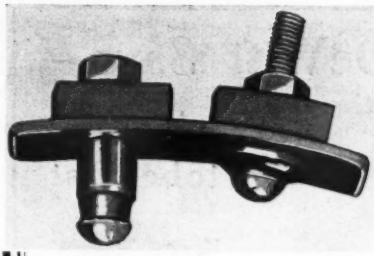
1,942,502. Humidifier. William H. Werhan, Lawrence L. Werhan and Frank S. Usrey, Pasadena, Calif.

Detroit, Mich.—The Welton Company, which conducts a plumbing and heating business at 1720 Brush Street, has changed its name to the Donald Miller Company.

Los Angeles, Calif.—Arthur Henry Behrens has opened a plumbing business at 142 South Doheny Drive, under the name of the One Trip Plumber.

Middletown, Conn.—Israel Mattes and Samuel Mattes have organized the Mattes Plumbing Company and have started in business at 46 Hotchkiss Street.

South Pasadena, Calif.—The Fair Oaks Plumbing Company has opened a plumbing and heating business at 814½ Fair Oaks Avenue, under the management of Percy Markowitz.



The NEW WAY to Repair

Now you can make a repair with this new all-metal MULTI-SEAL REPAIR PLUG that will positively eliminate the cause of the trouble, at an expense that is surprising.

The MULTI-SEAL PLUG is of lead composition which flows into cracks and irregular holes when the plug is drawn down. The metal ferrule on the tip of the plug fans out, compressing the metal into a flanged ring or rivet. The seal produced is an all-metal seal on three sides, assuring no further trouble from this one repair.

Cracks, holes, large or small, are repaired in a moment's time, and once made, can be **guaranteed**, because the repair made gives 100% suspension to the available suspension area.

MULTI-SEAL PLUG CO.
230 N. JEFFERSON ST. CHICAGO

THE NEW MODEL B-2400
OBERDORFER SUMP PUMP

¼ h.p. Induction Type Motor—110 volts—60 cycle—1725 R. P. M.

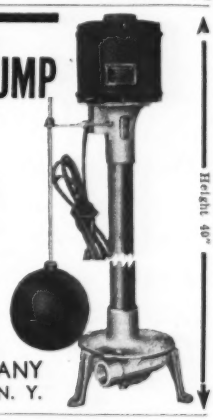
SPECIFICATIONS

PUMP: All bronze stainless steel shaft.
AUTOMATIC CONTROL: Enclosed switch, positive type, actuated by oversize ball float connected to control rod, with adjustable stops to regulate trip of switch for pumping at various levels.
INLET: Large inlet under pump, non-clogging screen protection.
OUTLET: Tapped for standard 1" fittings—easy connection to pipe or hose line.

Weight	Gallons per hour			Head in feet	
	1'	5'	10'	15'	20'
65 lbs.	2400	1900	1500	900	400

Attractive Trade Discounts

(Complete with 8-ft. cord & plug) $37.50 F.O.B. Factory



M. L. OBERDORFER BRASS COMPANY
2309 Thompson Road SYRACUSE, N. Y.

BARRETT
PLUMBER'S *Rough* BRASS *Goods*

The Standard — *Compression Stops* / *Compression Stops and Wastes* / *Ground Key Line* / *Waterworks Brass Goods* — *of Comparison*

THE CLEVELAND BRASS MANUFACTURING COMPANY
4606-4700 HAMILTON AVENUE CLEVELAND, OHIO

NRA

• WARNOCK •
Triple Wear Wrenches

The Warnock wrench is easy to adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

Theo. DeWitt Says—

After

October 1st

In TOLEDO It's

THE NEW

HOTEL SECOR

Completely Renovized and Re-equipped

POPULAR PRICED

Coffee Shop

AND

Parisian Cocktail Bar

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New Trade Literature

Hays Mfg. Co. Issues Catalog on Copper Plumbing

Hays Manufacturing Co. of Erie, Pa., has issued a catalog of its copper plumbing method and fittings, including its copper to copper seal connections, double-seal fittings and copper pipe, copper pipe tees, copper drop tees, crosses, elbows pipe unions, copper fitting reducers, compression stops and drains, bending machines, etc. The catalog consists of 24 pages, 8½ by 11 in., and printed on highly glazed paper with fine halftones, it is an attractive sample of the modern printer's art.

Folder on New Adjustable Flush Tank Cover

Anchor Products Manufacturing Company of 30 Church Street, New York City, has issued a folder describing and illustrating its new adjustable vitreous china, one piece tank covers for low down china tanks. These covers are made in various styles and sizes to the number of thirty, such as: Straight front, with round corners, 13 sizes; round front, with round corners, 9 sizes; straight front with colonial corners, 8 sizes.

Rights of Employers in Inventions of Employees

Charles F. Murray of Murray & Murray, attorneys at law, Monadnock Block, Chicago, has just issued a booklet, "The Rights of Employers in the Inventions of Employees," giving an outline of the law and practice relating to this problem. An attempt has been made to avoid the use of technical terms, hoping thereby to secure a sufficiently careful reading to insure a thorough understanding of the controlling principles of the subject.

Manual on Gas Water Heaters

American Gas Association of 420 Lexington Avenue, New York City, has just issued an "Installation and Service Manual on Gas Water Heaters," consisting of 215 pages, 7½x5¼ in. in size, containing a large amount of valuable suggestions for the proper installation and servicing of gas water heaters. It covers all forms of water heaters and their accessories intended to be used on manufactured, mixed or natural gases. The general treatment has been to give a summary of the types of appliances, their field of usefulness and their comparison with other forms of water heating methods so that the book can be effectively used by plumbers and gas water heater salesmen. Mention is made repeatedly of the various appliances by trade name or manufacturer's name so that practical interpretation of the instructions can be made without undue difficulty and without the necessity of interpreting a general description in terms of a specific appliance confronting the plumber. Bound in flexible fabrikoid cover the book is priced at $1 a copy.

N. Y. State Department of Health Issues Booklet on Plumbing

"Plumbing" is the title of a new sixty-one page booklet compiled and issued by the Division of Sanitation, State Department of Health, Albany, N. Y. In addition to the latest revision of the Standard Plumbing Code (minimum standards recommended by the State Department of Health) and of the State Laws Relating to Plumbing, it contains a section on the elimination of health hazards caused by faulty plumbing installations. The results of investigations made by engineers of the Division of Sanitation at various hospitals in the State have produced unquestionable evidence that faulty installation of plumbing have been responsible for the pollution of water supply systems by back drainage or back siphonage into water lines of the contents of a waste pipe or drain. In most of these investigations special emphasis has been laid on hospital installations where the maximum of care against infection is essential but the evidence collected has application to all plumbing installations. Copies of this book can be obtained from the State Department of Health, Albany, N. Y., for 35 cents each.

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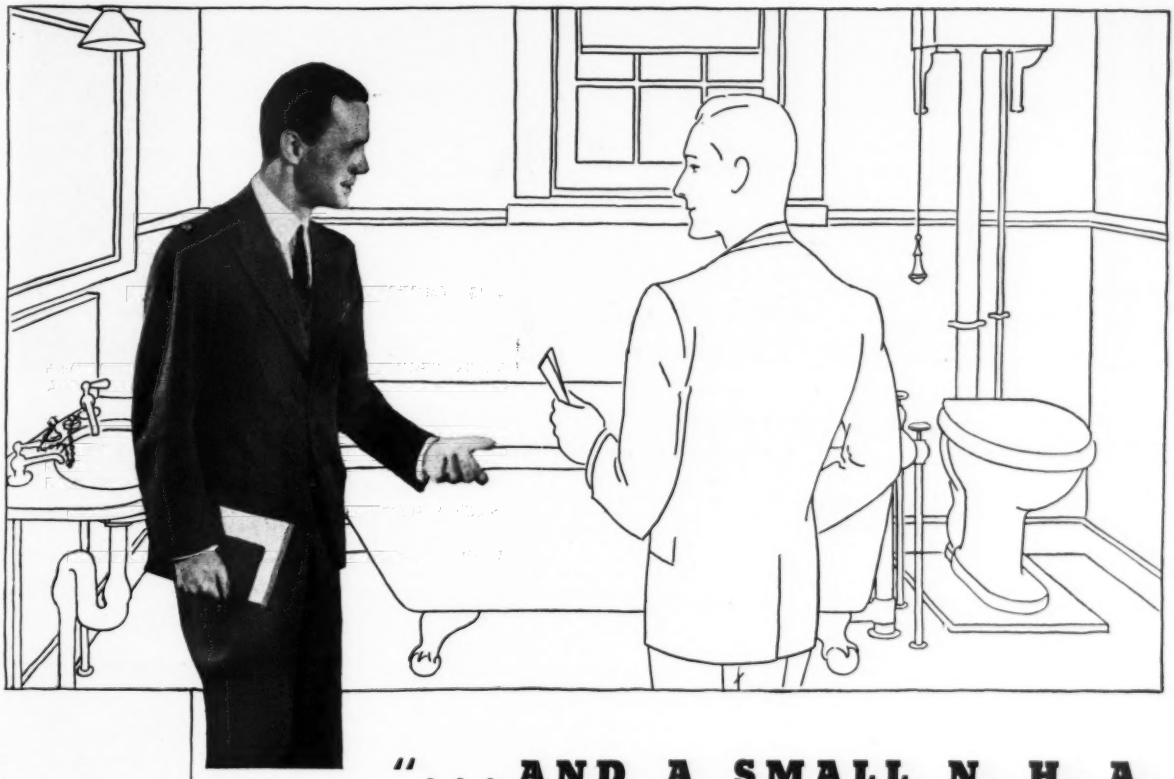

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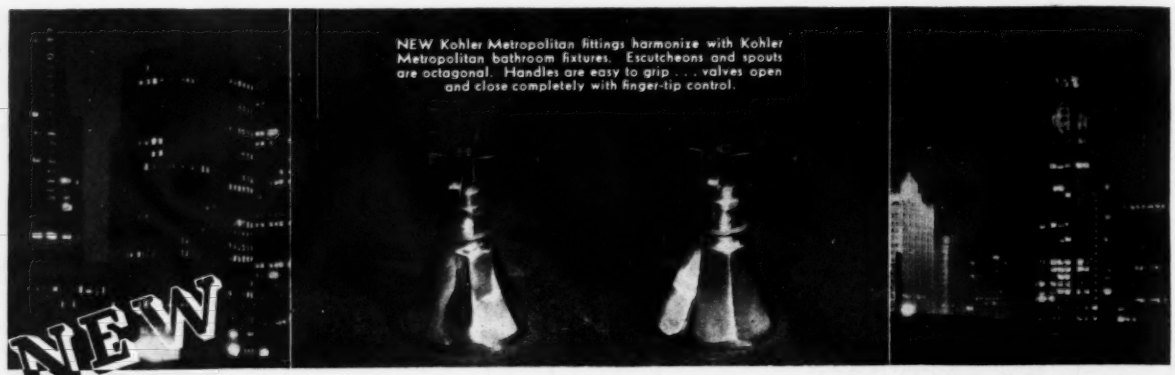
NEW Kohler Metropolitan fittings harmonize with Kohler Metropolitan bathroom fixtures. Escutcheons and spouts are octagonal. Handles are easy to grip . . . valves open and close completely with finger-tip control.
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—ideal for the
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$5,000 home
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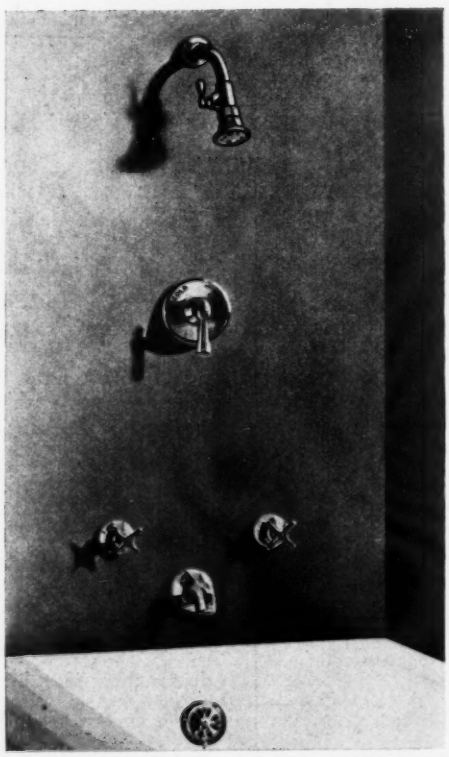
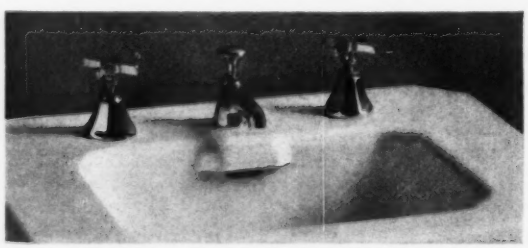


The K-7531-M Lyndon shower and bath fitting with Niedecken mixer in new Kohler Metropolitan design.



This K-8020-M Bancroft lavatory fitting illustrates the beauty of the new Kohler Metropolitan design.

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